The New York State

Conservationist

April-May 1954

State of New York Conservation Department

PINK LADY SLIPPER Minerva, N. Y.

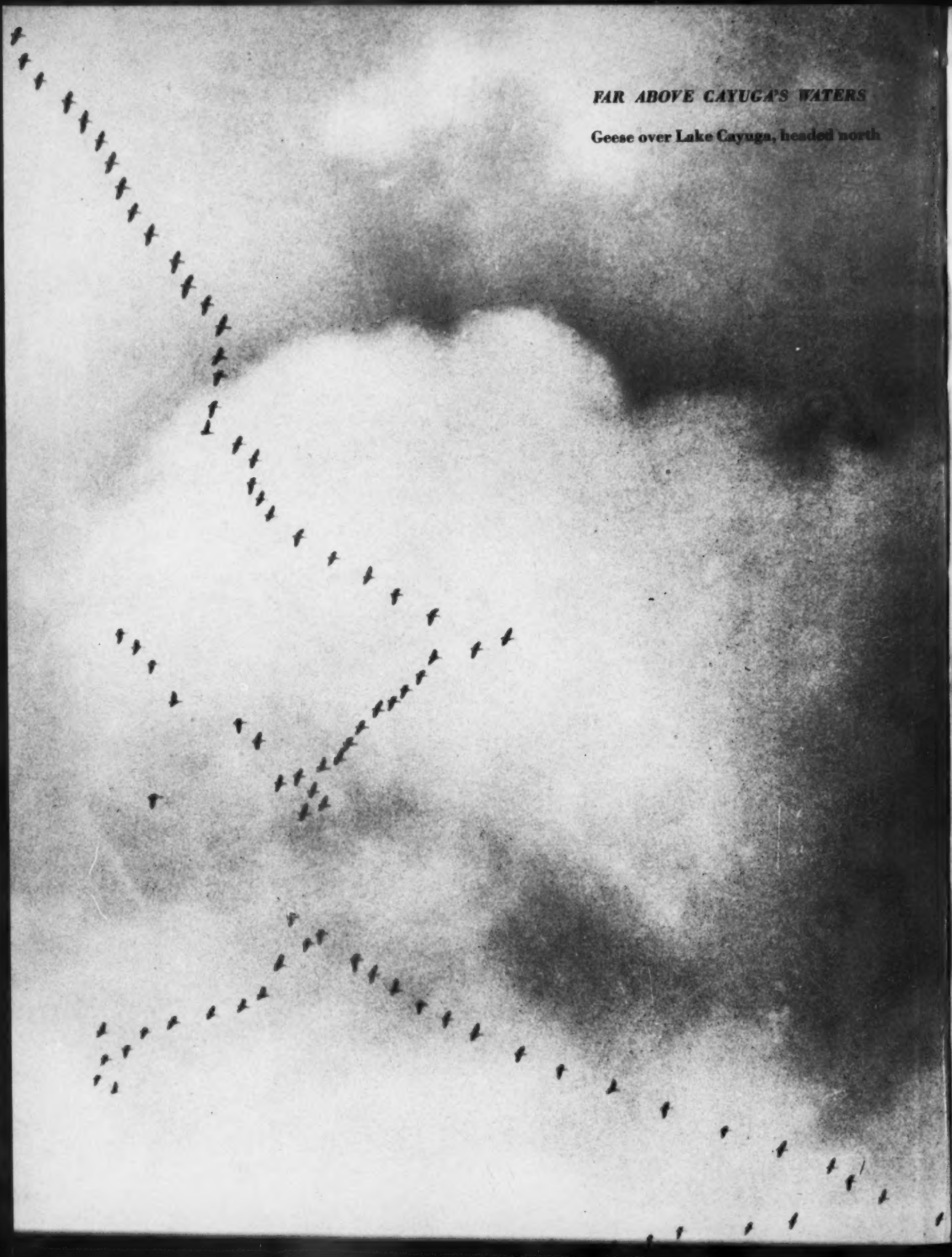
JACK-IN-PULPIT Rome, N. Y.

PAINTED TRILLIUM McLean, N. Y.

BLOODROOT Spencer, N. Y.

DANDELION Islip, N. Y.

DOG-TOOTHED VIOLET Hudson, N. Y.



FAR ABOVE CAYUGA'S WATERS

Geese over Lake Cayuga, headed north

Page 1 to page 40

In the mail this morning, from Utica (where Brother Seagears is currently romping around a Sportsmen's Show) there finally came the copy for page 40 of this issue. As it was only two weeks late, and since nothing else turned up in the mail that could be used instead, we are printing it.

Page 40, as you know, is normally reserved for the whimsies of Brother Seagears, who for eight years now has used this space to foist off on the public his notions about bees and bee balm, snakes and snake bite medicine, and certain animals he has met which he thinks everybody else should meet too.

Until now we have taken this stuff in our stride, and also printed it, confident that at least a majority of our readers could separate the wheat (if any) from the chaff. But there comes a time in the affairs of all men when we can retreat no further, when we must stand and fight, and for us that time is now. Brother Seagears has now gone *too* far. Sure it's Spring. Sure we're for Conservation. Sure this issue is mostly fish and flowers and everything nice. But under cover of all the good will and buoyancy which Spring generates, Brother Seagears on Page 40 of this issue attempts to sneak in The Wasp, (yes, The Wasp) and asks us all to love him like a brother. The Wasp is "of unique benefit to man," it says on Page 40.

On Page 1, we say phooey.

Doing his feeble best to make a case for The Wasp, Brother Seagears suggests that it eats many of our insect enemies such as caterpillars, cockroaches, etc. But the real and proper hero of Page 40 is not even mentioned. This is The Skunk, which eats *wasps*. (Brother Seagears has never written anything about *this* great friend of mankind.)

But suppose we give The Wasp the benefit of the doubt (there isn't any) and learn to love him as Brother Seagears suggests. Then what? Are we going to get any love and affection in return? Oh friends, what you'll get from this always angry beast is a belt in the puss that the sourest Army mule would be proud to deliver. Ever try to pet a wasp, Brother Seagears?

There is, however, a faint gleam of hope—and we find it right there in the subversive manuscript on Page 40. There it says that all male wasps die in the Autumn. Well, that's half of the problem solved. As to the other half, we personally will underwrite a research project to determine how this blanket mortality can be extended to women wasps. Then we will be through with The Wasp—and The Wasp-lover too.—Editor

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$750,000 for State Forests

THE conservation of forest resources has been a recognized policy of this State for nearly 70 years. During this period New York has sponsored a number of progressive conservation programs, one of the outstanding examples being our State Forests. At its inception, this program called for the acquisition and planting of some one million acres of abandoned farm lands, but due to the depression and World War II it was necessary to abandon these objectives. However, following the war, Governor Dewey allocated from "Post War Funds" a substantial amount of money for the revival of the program. Additional lands were acquired and planted and a major portion of the rehabilitation work which had accumulated during the years of inactivity was completed.

But these "Post War Funds" were exhausted as of March 31, 1954. At this point the Department faced the problem of the proper future management of the one-half million acres already acquired so that the State's original investment in land acquisition, planting, and post-war rehabilitation would be returned to the people of the State in the years to come.

In an attempt to face up to this problem, the Department undertook an intensive study of existing plantations with a view to determining how they could most properly and most economically be managed. In this study New York State had a pioneer opportunity because many of the plantations are now old enough so that growth rates and prospective yields could be determined with reasonable accuracy.

As a result of this study a long-range management program was arrived at. It called for the expenditure over a 25 year period of approximately three-quarters of a million dollars each year, and a request for the first annual appropriation in this amount was made to the Director of the Budget last fall. The Budget Director and the Governor concurred in the wisdom of this important investment in forest conservation, and the Executive Budget for the 1954-55 fiscal year, now law, contains an appropriation for $750,000 for this development and improvement work in our State Forests.

The appropriation of these funds for State Forests marks an all-important milestone in the history of forest conservation in this state. It is the first time funds have been made available for the specific purpose of promoting good forest management within already established State-owned forests. Furthermore, by this act our State government officially recognizes that proper management of our forests is essential to the sound conservation of our forest resources. The Conservation Department will now be able to commence work on its 25-year program of intensive management of State Forests—a program which it is expected will return in revenue to the State some $40,000,000 by 1988, and still provide a well stocked production forest for future use.

As we enter this new era in the history of our State Forests program, certain adjustments must be made in the over-all objectives. Nearly a quarter of a century has passed since the initiation of the program, and the State now owns slightly over one-half of the lands originally designated for acquisition. However, we have reached the point where the management of *existing* forests must of necessity take precedence over the acquisition and planting of additional areas. With this in mind, our 25-year work plan has been prepared, directed toward the intensive management of some 371 State Forest areas located in 34 counties of the State. The carrying out of this plan will necessitate the annual expenditure of some 70,000 man-days for such projects as reforestation, cultural treatment of natural stands, thinning and pruning of plantations, truck trail maintenance and fire protection.

At first glance this would appear to be a substantial contribution on the part of the State for a program of forest management. However, when we stop to consider that by the time the 25-year plan has been completed the entire cost of the State Forests program will have been returned to the State, along with a substantial profit through sales of forest products, we can more fully appreciate that the expenditure of these funds is not a contribution, but a sound investment.

In appropriating funds for the management of our State Forests, the present State administration has not only expressed faith in the Department's program of forest conservation but has also provided a means of demonstrating to private individuals that properly managed forest plantations can pay dividends. For over 50 years foresters have been advocating the reforestation of idle lands, and thousands of acres of such lands throughout this State have been planted to trees by private enterprise, and forgotten. Many of these plantations have developed into stands of over-crowded and stunted trees, devoid of present or future commercial value. While they may serve a useful purpose as ground cover, they will never add materially to the forest resources of the State.

The Conservation Department, as well as others interested in forestry, has been greatly concerned over this situation, since it is well known that unless plantations receive proper silvicultural treatment at the right time their value as production forests is very questionable. Through the medium of the Forest Practice Act, the Conservation Department is exerting every effort to encourage good forest practices on privately-owned lands, and considerable success has been made along these lines. The private landowner, however, has the right to expect the State to practice what it preaches. Therefore, the launching of an intensive management program on State Forests will not only encourage the private owner to do likewise, but will demonstrate to him ways and means of accomplishing this end.

—W. M. Foss,
Director, Lands and Forests

Hunting Safety

THE 1953 hunting season in New York State went into the record books highlighted by an all-time high in the number of licenses (903,646) and a 10-year low in hunting accidents.

There were 112 accidents during the season, seven of which were fatal; a decrease of 50 per cent in fatalities from the 1952 season.

A large and well-deserved share of the credit for this fine record goes to the more than 1,600 N.R.A. Hunting Safety Instructors in the State authorized by the Conservation Department to teach young hunters the fundamentals of handling firearms. Satisfactory completion of this course of instruction is required of all minors under 21 years of age in qualification for issuance of their first hunting license. Since inauguration of the hunting safety program by the Department in 1949, a total of 73,262 juniors has been trained by Game Protectors and authorized N.R.A. Instructors.

The following tables trace the improved hunting safety record in the State and pin down, as closely as possible, the causes of accidents which do occur.

It will be noted that even though the hunter training program has been in progress in the State since 1949, untrained minors are still being issued hunting licenses—as evidenced by the fact that in the accident column, *they outnumber those who have received training*. This is partially explained by the fact that youths still under 21 years of age could have qualified for a junior hunting license prior to passage in 1949 of the provision of the Conservation Law making such training obligatory. To a greater degree, however, responsibility lies with license issuing agents who, through oversight or intent, do not comply with this provision of the law.

The Conservation Department is doing everything possible to impress issuing agents with the importance of this requirement of the law.

HUNTING ACCIDENTS

Year	Fatal	Non-Fatal	Total	Licenses
1950.....	13	100	113	799,623
1951.....	17	124	141	835,062
1952.....	14	106	120	883,580
1953.....	7	105	112	903,646

WEAPONS INVOLVED IN HUNTING ACCIDENTS

Year	Rifles	Shotguns	Other	Unknown	Total
1951.....	45	92	0	4	141
1952.....	42	72	5	1	120
1953.....	28	82	2	0	112

ACCIDENT-TO-LICENSE RATIO

Ratio Of Fatal Accidents To Licenses	Ratio Of Non-fatal Accidents To Licenses
1950:—One to 61,500 licenses	1950:—One to 8,000 licenses
1951:—One to 49,000 licenses	1951:—One to 7,500 licenses
1952:—One to 63,000 licenses	1952:—One to 8,300 licenses
1953:—One to 129,000 licenses	1953:—One to 8,600 licenses

ACCIDENTS RE GAME PURSUED

	1952	1953
Big Game	30	18
Small Game	51	45
Woodchucks	14	7
Game Birds	15	20
Waterfowl	1	3
Crows	1	0
Other & Unknown.....	8	19
Total	120	112

REPORTED CAUSES OF ACCIDENTS

	1952	1953
In line of fire.....	43	38
Carelessness	42	35
Ricocheting	17	14
Mistaken for game.....	12	10
Gun failure	2	0
Loading or unloading...	1	8
Unknown	3	7
Total	120	112

MANNER OF ACCIDENTS

	1952	1953
Self inflicted	26	29
Killed by companions...	10	3
Injured by companions..	69	72
Unknown (2 of which were fatal).....	15	8
Total	120	112

HUNTING ACCIDENTS IN NEW YORK IN RELATION TO HUNTER TRAINING PROGRAM

Year and Age Limit	Number of Minors Trained by Game Protectors	Number of Minors Trained by Authorized Agents (NRA)	Total Number Trained	Number of Minors Involved in Accidents: Trained	Untrained	Total	Number of Adults Involved in Accidents	Total Number of Hunting Accidents	Number Hunting Licenses Issued
1949									
Under age 17	6,459	none	6,459	4	13	17	116	133	763,365
1950									
Under age 17	8,649	3,052	11,701	12	19	31	82	113	799,623
1951									
Under age 17	8,413	5,651	14,064	10	23	33	108	141	835,062
1952									
Under age 21	2,500	17,111	19,611	19	22	41	79	120	883,580
1953									
Under age 21	2,450	18,977	21,427	11	21	32	80	112	903,646
Totals....	28,471	44,791	73,262	56	98	154	465	619	4,185,276

American bison group. Bison formerly occurred in New York

Wildlife in miniature

Louis Paul Jonas, Jr. painting model of fawn

Bruce Madlen working on model of bear cub

Moose
Formerly common, now rarely seen in New York

WORKING in his studio near Claverack, New York, Louis Paul Jonas, world famous sculptor and museum technician, makes beautiful miniatures of wildlife. These models are reproduced in durable latex and painted by Mr. Jonas and his assistants to simulate the color and texture of the living animal. The fact that the job is well done is attested by the demand for these pieces of art. Sold in stores throughout the country, they are favorites of many sportsmen. Based upon photographs, drawings and measurements of the actual animal, the statues are accurate to the smallest detail. Because of this they are also used by many museums in the construction of small dioramas enabling them to illustrate the larger mammals in a limited space. The models are all one-tenth scale.

Not only are large contemporary species shown but also long extinct ones such as the mammoths and giant ground sloths. Since it is difficult for the public to imagine the actual form of an animal from the bones, the models are extremely valuable in interpreting these remains. The use of these small displays either in dioramas or as separate figures, allows for a greater coverage and more frequent change of material by small museums and by those handicapped with lack of exhibit space.

Not all of Louis Jonas' work is done in small scale. The world's largest mu-

seum diorama, featuring an African waterhole scene, is a product of the Jonas studio. This diorama is housed in a special hall (also designed by Louis Jonas) at the National Museum of Science in Caracas, Venezuela. It depicts 50 species of birds and mammals, the latter varying in size from giraffes to tiny dik-diks. The artificial bodies over which the skins are stretched were carefully modeled to anatomical perfection and show the same care and workmanship as do the smaller models. Many months, sometimes years, of work go into the completion of such a group. The Caracas group is only one of many full scale dioramas that have been built by Jonas and his staff. The latest, and one on which finishing touches are now being put, is another African waterhole scene for the St. Louis Museum.

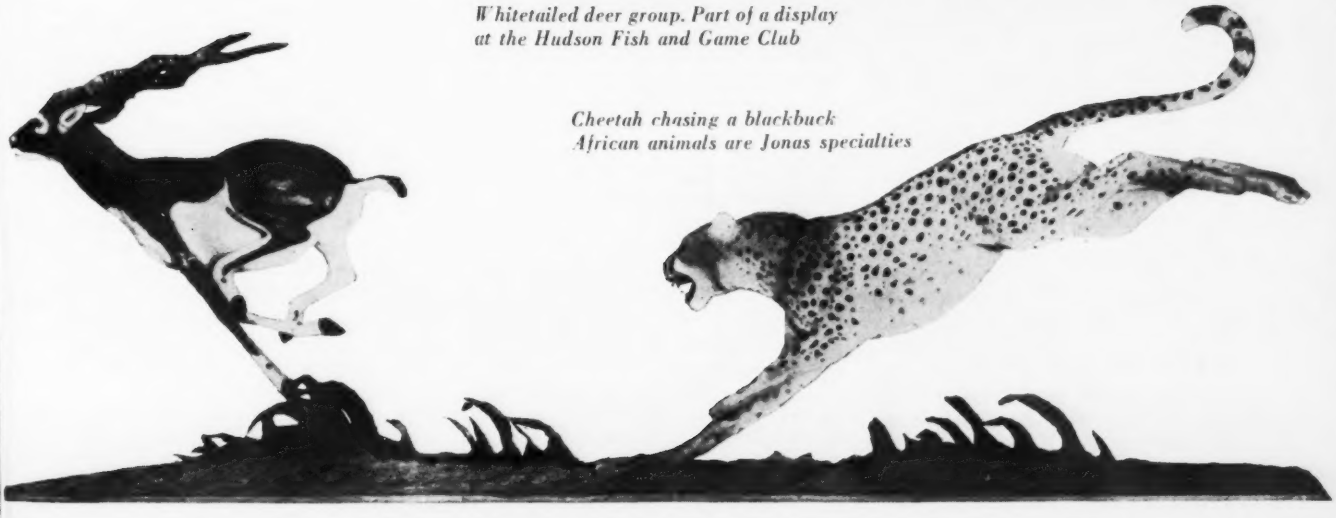
Assisting Mr. Jonas is his son, Louis Paul Jonas, Jr., and the rest of his staff, most of them artists and sculptors in their own right. Like most artists, Louis Jonas and his assistants enjoy showing and describing their work to interested people. The studio, with its variety of activity and the enthusiasm of the personnel for their work, is a fascinating place. Whether a person's interest is in art, conservation, or museum techniques he will find Louis Jonas and the studio well worth a visit.

—H. Wayne Trimm

Mountain lion or "panther"
Believed to be extinct in New York

Black bear
Common in New York

Whitetailed deer group. Part of a display at the Hudson Fish and Game Club



Cheetah chasing a blackbuck
African animals are Jonas specialties

More Suggestions for Canoe Trips

By Lawrence I. Grinnell

IN RESPONSE to Mr. A. T. Shorey's invitation at the end of his article "Easy Paddles" in the August-September issue two years ago—an invitation to others to submit recommended canoe trips—the writer has set forth below a few notes on some additional New York canoe cruises which he and his wife have personally made. Thus far over 60 rivers in this State have been explored, totalling around 2,500 canoeable miles, out of a total of approximately 90 rivers having a minimum of 10 consecutive canoeable miles. So we have roughly one-third of the total number of rivers still to complete.

The character of many streams is highly variable at different water stages. Some rivers listed herewith can become dangerous during flood conditions, and some become uncanoeable in drought conditions. Lake trips and canals are not included. The symbol (H) indicates that the stream is passable at high water only.

Beaverkill (H): 17 miles of continuous excitement, from Roscoe to the Delaware River, East Branch, through foothills of the Catskills. Experienced canoeists only.

Black River: About 50 miles of still-water, or slack current, from below dam at Lyons Falls to Carthage. One or two carries over remains of old dams. Enough water for summer travel.

Canandaigua Outlet (H): Pleasant, fast, easy run from below Manchester bridge to 9 miles below Phelps, after which current slackens. Total distance for part described, 29 miles.

Canisteo River: Fast, rough, but worthwhile trip, of intermediate difficulty, through narrow, unspoiled valley southeast of Hornell. From Canisteo to Tioga River, 43 miles.

Catatonk Creek: Mostly easy, fast run from West Candor to Owego Creek, 16 miles.

Cayuta Creek (H): Exciting, fast coast down narrow, rapid stream, from one mile below Swartwood to Susquehanna River, 23 miles. At East Waverly the venturesome can, with caution, at high water, hurdle a two-foot dam. For experienced paddlers.

Charlotte Creek (H): Thrilling run on small stream, 19 miles, from below Fergusonville to Susquehanna River. Heavy, steep rapids (with obstructions) below West Davenport require looking over and using extreme caution and judgment. Experts only.

Chemung River: Easy, pretty stream, with a few light riffs. From Painted Post to Susquehanna River, 43 miles. Only one dam to portage (at Elmira).

Cherry Valley Creek (H): Fast stream of intermediate difficulty. Portage around destroyed bridge two miles below Middlefield. Look over obstructions about one mile above Westville bridge. Middlefield to Susquehanna River, 19 miles.

Chittenango Creek: Easy meanders for 20 miles from second bridge above North Manlius to Oneida Lake.

Cohocton River: From 2 miles above Avoca to Chemung River, 34 miles. Strong current, mostly easy whitewater. Exercise caution at debris collections one mile below railroad bridge at Coopers Plains; also at remains of concrete dam about one mile above Painted Post.

Delaware River, West Branch: A lovely intermediate run of 65 miles, through the lower Catskills, from Delhi to Hancock. Comparable in scenery and speed to the better-known East Branch. Clear water. Frequent light riffs, but nothing difficult, except possibly the problem of finding a suitable opening through a weir at Rock Rift. Many fascinating channels interlace around islands.

Fall Creek (H): For experienced canoeists only. One of the most attractive and challenging runs in Central New York. From the second Route 366 bridge above Etna, to Varna—8 miles. Run starts mildly, increases to light riffs, then heavier rapids (on approaching Varna) which should be scouted and which can become dangerous for canoes at extra high water. *Because of falls downstream, do not proceed below Varna.*

Esopus Creek (H): Steep, rough run, full of difficulties and some dangers, from Shandaken to Route 28A bridge above the Ashokan Reservoir, 13 miles. Too treacherous at very high water. Certain pebbly shoals are subject to radical change in character. Suitable only for experts, working in a close well-organized group. Several stretches must be first minutely examined from land and parties stationed at bottoms of runs, ready for rescue, if needed.

Fish Creek, East Branch (H): Difficulty variable. A clear-water stream. The first part, from Westdale to Camden (12 miles), begins with sluggish meanders and ends with an easy but sprightly run. Stretches below Camden Dam have rocky, unnavigable rapids, so portage to below dam at McConnellsville. From here down is a thrilling run through forests (experts only) 4 miles to Blossvale, then to the East Branch.

Genegantslet Creek (H): From Smith-

ville Flats to the Chenango River, 12 miles. A lovely little whitewater gem, of intermediate difficulty.

Genesee River: From Mt. Morris to outskirts of Rochester, 50 miles. Easy except for two short pitches between Geneseo and Avon. Mild current, slowing to stillwater. Water level often high enough for summer travel.

Grass River: From below outlet of Massena Canal to St. Lawrence River, 8 miles. Easy but very fast current, owing to addition of water diverted from the St. Lawrence. Remains high during summer.

Great Chazy River: Stillwater paddle between the Town of Champlain and Lake Champlain, 7 miles.

Honeoye Creek (H): From Sibleyville to Genesee River, 14 miles. Fast, easy run to Rochester Junction, then current slackens. Dam at Rush.

Hoosic River: From New York-Vermont boundary to Hoosick Falls, 13 miles (high water only). Very fast current and fairly easy riffs. Some blow-downs must be carefully dodged. Portage around falls and dam at Hoosick Falls; re-embark at Hoosick Junction, where begins a 15-mile paddle to Valley Falls, with mixed stillwater and light riffs. Portage around dam at Johnsonville.

Little Salmon River (H): From Route 11 bridge, north of Hastings, to Mexico, 9 miles. Some easy, gentle riffs.

Moodna Creek (H): From one mile west of Washingtonville to Orrs Mills, 14 miles. For experienced canoeists. Starts easy; works up to a sporting climax. Two low dams to shoot over at high water. Portage around dam at Salisbury Mills.

Mud Creek (H): From Sonora to Cohocton River, 6 miles. Pretty trip through State game area. Current mostly slight. Shallow pitch outside Savona, at destroyed dam.

Neversink River (H): A dashing run from below Neversink Dam to Bridgeville, 16 miles. For experts. Several rough rapids need looking over. Two dams in vicinity of Fallsburg must be portaged; a third destroyed dam can be run with care, after examination. Deep ravines on approaching Bridgeville. Omit Bridgeville section, where dangerous rapids and falls occur. Below Rose's Point is a scenic 13-mile run to the Delaware River at Port Jervis, close to rhododendron shores and flanked by the Kittatinny Mts. The run is easy, except for the first dash, which ends at an abrupt turn on meeting the Basher Kill, where lining may be necessary to avoid crashing into the far side.

Oswegatchie River: From Elmdale, on Route 58, to Ogdensburg, 52 miles. Mostly placid, except for a sensational narrow chute between rock walls (first examine) 2 miles below De Kalb, and some rough ledges to be looked over (some impassable) between Rensselaer Falls and Heuvelton.

Otego Creek (H): From Laurens to Susquehanna River, 14 miles. Pretty little stream, with many easy, enjoyable riffs. Watch out for occasional hazards of barbed wire and debris.

Otselic River (H): From Otselic to Whitney Point Dam, 45 miles. Offers real sport throughout much of its length. For experienced canoeists.

Ouleout Creek (H): From Route 7B bridge, below North Franklin, to Susquehanna River, 19 miles. A fast little creek, requiring experience to maneuver. Laborious carry around East Sydney Federal Dam.

Rondout Creek (H): From Napanoch to High Falls, 17 miles. A fast, attractive run, involving some finesse in running a pitch 2 miles below Wawarsing, and on rapids at approach to bridge at Alligerville.

Sacandaga River: From 5 miles below the Sacandaga State Campsite to Northville, 10 miles. A marvellous, clear stream, which penetrates forests of the lower Adirondacks. No great difficulties, but caution and some whitewater experience desirable, as current often races along at 4-5 miles per hour. Above the start mentioned, the river is much more difficult and sometimes dangerous.

Saranac River: From Town of Saranac Lake, 12 miles to a point 2 miles east of Bloomingdale, close by the road on north side. Smooth gliding through marshes. Pleasurable when high water increases current speed. Don't delay taking out promptly, for difficult rapids occur beyond.

St. Regis River: Two placid, wilderness stretches of the upper river: (1) From Santa Clara, 9 miles upstream into narrow, meandering marshland. (2) Six miles upstream from St. Regis Falls to the foot of rapids. Both trips are navigable during summer but the first suggestion had better be postponed until higher water levels are created by repairs of the partly defective dam at Santa Clara.

Schoharie Creek: From North Blenheim to Esperance, 33 miles. In upper part the stream tears from side to side of a spectacular valley, flanked by cliffs. The river in the North Blenheim-Breakabeen section is rough and powerful. It should preferably be run single by an experienced paddler because of occasional high waves. Thereafter the stream becomes gradually slower and easier, yet with some riffs. Dangerous rapids occur both above North Blenheim and below Esperance.

Schroon River: Mostly light current, through forests, from Schroon Falls to Schroon Lake, 11 miles. Traverse the length of the 10-mile lake; then 6 miles through marshes to a dam. From this point portage by car about 6 miles to a point below dangerous rapids, leaving about 14 miles more (on little current) to Warrensburg.

Seely Creek (H): A steep, jolly little stream, from Wells to the Chemung River.

Shawangunk Kill: Pine Bush to Wallkill River, 12 miles. First part fast and fairly easy. Difficult rapids 4 miles above the Wallkill. Dam one mile above Ganahgote.

Tioga River (H): Fast, moderately easy, from the Cowanesque River to Painted Post, 16 miles.

Tioughnioga River: Very attractive. Continuously fast, but not difficult. One of the best rivers for learning quick-water technique. From Loring, on East Branch, to Chenango Forks, 38 miles.

Wallkill River: From Papakating Creek, N. J., to New Paltz, 68 miles. First part monotonous, but between Walden and New Paltz many easy riffs. Difficult boulder patch near Libertyville. Below New Paltz the river is interrupted by dams.

Wappinger Creek (H): Fun at high water, between Salt Point and Wappinger Falls, 21 miles. Pull out for portage before reaching a steep, rocky chute at approach to lake at Wappinger Falls. For intermediates.

Wharton Creek (H): From Edmeston to Unadilla River, 14 miles. Smooth current and easy riffs.

Salmon in New York

The Red Salmon, or sock-eye

DISCOUNTING for the moment miscellaneous variables such as the weather and environmental features, there seem to be three factors concerned in fishing: (1) The fish; (2) the fishermen; (3) the fish management program. Here is a brief summary of how these factors bear upon the new and rapidly-growing salmon fishery in New York lakes—in which the fish concerned are two very different species of Atlantic and Pacific salmons.

1. The Fish

There is only one species of Atlantic salmon known to science, although resident fresh water populations are usually called "landlocked salmon." Tests in New York waters to date show that "Atlantics" from sea-run parents stocked in some of our lakes produce fish which cannot be distinguished from those originating from landlocked parentage. So for practical purposes we can lump all "landlocked salmon" into one species of fish. This is by far the best known, largest and most important type of salmon in New York lakes. The supply has been progressively increased over the past several years.

As to Pacific salmon, although there are five species known, only one of these is involved in the present New York salmon program. This is a species variously called red salmon, sock-eye, blueback, kohanee and little red fish. Tests in New York lakes so far indicate that size up to about two pounds is reached—in general, a much smaller fish than the landlock. Red salmon are distinctive in that (despite their large teeth) even the adults eat tiny plankton organisms which many game fish feed upon only when young. For this reason very small lures are used for red salmon, which are taken in numbers by anglers in many waters of the Pacific northwest. In New York, the supply, while still moderate, is building up to an encouraging extent in several lakes.

2. The Fishermen

Whenever salmon have been built up in our lakes to a point where action can be expected, anglers seem eager to try to catch one. In Schroon Lake, Lake George and a few other waters, many persons have succeeded in catching numerous landlocked salmon of recent years. And in Green Lake (Green Lakes State Park, Onondaga County) some success in taking red salmon has been reported. Since the best test of experimental salmon stocking is by angling, repeated requests have been made for reports of catches by fish-

Male Red Salmon from Green Lake

ermen. Such information is particularly important in waters where stocking is still on a trial basis.

Angling methods for landlocked salmon are commonly known among New York sportsmen, but this is not true for red salmon. So at this point we depart from one of the cardinal principles of this magazine—which is to stay clear of the how-to-catch-more-fish, how-to-kill-more-game angle—and in the interest of research and management offer some tips on how to catch red salmon:

The methods successfully used in taking red salmon include trolling, still fishing and fly casting. In summer the fish are in the deep, cold water and may range well above the bottom. Although only small lures are successful in hooking them, larger lures are used as attractors. A rig made up of metal wobblers and red beads, followed by a small hook with small piece of worm, is reported to be successful. During the spring and fall, when surface water is cold, the fish range the shallows and at surface. In early spring, still fishing with a single salmon egg is reported to work well and some anglers are successful with artificial flies, using smaller sizes. In any case, red salmon are distinctly a light tackle fish and should be played carefully—with a rod limber enough to keep them from tearing out the hook.

3. Management

Coming to the third factor mentioned, the salmon management program, steps consist in brief of research, propagation and such applied management as can be developed. At the start, the trial of salmon in a new lake is an unknown venture, even when all facts from previous surveys have been evaluated in advance. There are and may continue to be some failures and some partial successes, but in general results have been so encouraging that expansion of the salmon planting program has been undertaken. This is particularly true of landlocked salmon. As a measure of the increase in salmon supply in the various lakes, test netting is used—either by means of a brief check by gill nets, or a more intensive campaign to secure salmon breeders to supply the eggs needed for propagation.

Last fall, efforts to net landlocked salmon for spawn met with excellent success; the 309 fish captured were a record catch. The upturn in numbers was especially high in Lake George, which incidentally produces the largest salmon of any New York lake, but the abundance of fish in Schroon Lake and Clear Pond (Essex County) was also high. A few salmon were taken in Upper Saranac. And in several other lakes, including Cranberry, Chateaugay, Long Pond (Franklin County) and Blue Mountain Lake, there was evidence of at least some survival. In any of these lakes where experimental planting is comparatively recent, further details regarding salmon encountered by anglers during the present fishing season would be helpful, especially scale samples taken by scraping off a few scales and sending in accompanying data as to length, date of capture, locality and other details.

With regard to red salmon, although attempts to take spawn were confined to experimental work, the few eggs secured proved to be of excellent quantity indicating possibility of further expansion of spawn-taking if the population of this fish continues to increase. Adult red salmon were secured at Green Lake (Onondaga County), Little Green Pond (Franklin County) and Lake Luzerne. Immature red salmon were also netted in Loon Lake (Franklin County), Chapel Pond and Caroga Lake. The abundance appears to be highest in Green Lake, but exploration by anglers in other lakes is to be desired from a management point of view—and might pay off to the angler. It is still too early to predict what future the red salmon may have in New York lakes but if the supply can be built up (and if anglers can solve the problem of getting these delicate feeders to strike readily) the red salmon may become established as a light tackle sport fish for small, deep lakes. Incidentally, this species is not protected by law in New York and may be angled for at any time, any size.

Male Landlocked Salmon from Schroon River

THE salmon project, which took concrete shape in 1944, is State-wide in its purposes. In the early years of this work Schroon Lake was selected as a study area, but today we are operating on an enlarged scale, expanding as rapidly as warranted by the fish, the fishermen and the management program. While the fisheries biologists can to some extent check on the success of this program, there is much information that only the anglers themselves can supply. Please let us have scale samples and information as outlined above.

—JOHN R. GREELEY,
Chief Aquatic Biologist

The case for archery

by Bill Rice, *Chairman, Publication Committee, New York Field Archers' Assn.*

THE recent unprecedented growth of modern field archery has caused so much criticism from some quarters that it is now time for a realistic evaluation of the sport as a hunting method. Is all this heat justified, or is it generated by the growing pains which usually accompany the expansion of any new sport? The facts seem to indicate the latter. Experience has shown that wherever archery has taken hold, the gunners soon learn that bowmen do not impair their sport and drop their opposition. In fact, increasing numbers drop their guns and pick up bows as they discover the fun they have been missing.

It is only during the past six years that the Conservation Law in New York has provided for a special bow and arrow season for big game, and the great majority of sportsmen have not as yet had an opportunity to gain first hand knowledge of the capabilities of a modern hunting bow and broadhead arrow. As a result, many fantastic and preposterous tales have made the rounds wherever hunters gather. The facts simply do not substantiate such tales, and if all the sportsmen knew the facts there would be no disagreement between the archer and the gunner.

Wisconsin in 1934 was the first state to legalize bow hunting. Since then, almost 200,000 archers have hunted their forests, affording opportunity to gather complete figures and facts about bow hunting. In all these years the Conservation Department in Wisconsin found that bowmen took less than one per cent of the deer killed in the state, pointing up the fact that the archer will never be a serious competitor of the gunner.

But Wisconsin archers initially were faced with the same unfounded charges as are directed at bow hunters in New York today. In fact, the controversy in that state waxed so hot and became so involved that the Wisconsin Conservation Department launched a complete investigation of bow hunting. This, briefly, is what they found to be true:

The deer kill by archers consisted of approximately 42 per cent bucks, 58 per cent does. Of these, 33 per cent were fawns of the year. The average deer was shot at 28.9 yards and traveled 150.6 yards before being recovered. 23.1 per cent were shot running or walking and 76.9 per cent standing. The average bow used pulled 56.4 lbs.

The Wisconsin survey was valuable also in determining the sportsmanship or degree of respect held for the conservation law by archers as a group. Of 10,190 archers licensed in 1947, only 31 were convicted of violations of the conservation law, in 1948, 12 archers violated the law of 10,687 licensed and in 1949, 38 out of 12,406. Otis Bersing who made the study for their department, says in his report, "Bow hunters will recognize their responsibility, they will endeavor to perpetuate the sport as it should be, and will cooperate with enforcement officers in the prevention of all game violations."

An element of chance exists in all big game hunting and, inevitably, some wounded animals will escape to die. To find out just how serious this problem was in bow hunting, Wisconsin had its game managers, wardens and forest rangers investigate every report of wounded or dead deer due to archery. Over the five-year period they verified a total of 149 wounded and 51 dead deer. The official report has this to say: "There is very little verified evidence of a considerable number of arrow-wounded deer or deer later found dead. Instances of these undesirable conditions are not as evident as the number of wasted deer resulting from other types of hunting."

If bow hunting were cruel and inhumane, and the broadhead arrow were an inefficient weapon, the archer would not be justified in their use. But after 22 months of bow hunting in Africa, and years of hunting on this continent with Dr. Saxton Pope, the father of modern archery, Stewart Edward White has this to say: "If one were to formulate the killing power of the broadhead arrow, one would then say that, as far as American big game is concerned, a hit anywhere

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NOTE: In 1948 the Conservation Law of New York provided for the first time for a special open season for taking, under an archery license, bear and antlered deer with the long bow in all counties or parts thereof wherein a regular open deer season prevailed; said bow and arrow season being the fourteen-day period immediately preceding the regular open season on deer. In 1952 the law was further amended to permit archers, under such special license, to take a deer of either sex and a bear during the fourteen-day bow and arrow season, and such special license was made valid for hunting antlered deer and bear during the regular open season in any county or part thereof.

The Conservation Law further provides, with reference to the use of bow and arrow to take big game, that bows shall have a pull of not less than forty-five pounds. It prohibits the use, for such hunting, of arrows having fewer than two sharp cutting edges, or measuring less than seven-eighths of an inch at the widest point of the head, and also prohibits the use of arrows having explosive heads or shafts.

in the body cavity on all animals up to and including the deer is certainly and humanely fatal, and that on all larger animals a chest shot is thus fatal."

The charge has been made that the archers in New York, because of the special archery season, are a special privilege group. I've yet to meet the archer who wouldn't like to see every gun hunter in the State take out a $5.25 archery license and become a privileged character too. The archer knows that as long as good conservation means good utilization he can have his cake and eat it too. The more archers there are the less gunners there will be, so the more deer we will have, thus making a longer season possible and giving more sport to everyone.

Admittedly, there have been a few regrettable incidents perpetrated by bowmen. As soon as a man steps afield with a bow in his hand he is classified as an archer, which is unfortunate. The National Field Archery Association and the New York Field Archery Association are well aware of this, and they are both making every effort to attract every hunter who uses a bow to their organization in order to properly indoctrinate and instruct them in the use of the weapon. The NYFA is sponsoring legislation designed to promote an acceptable mode of conduct among New York archers, and the National Association is sponsoring a sportsmen-landowner campaign which could well become a model for all sporting clubs throughout the Nation. Their members carry membership cards which read "The National Field Archery Association has confidence that our member, whose name appears on the front of this card, is a gentleman and a sportsman. May we request that you allow him to hunt with a bow and arrow on your property. It is understood that if he, in any way, damages your property or livestock and refuses to make settlement, we will, upon presentation of his name and proper proof, pay for said damage up to the amount of $100."

Some states that have had much longer experience with the archer than we have are making a real effort to induce out-of-state archers to visit and hunt in their state. They know that they bring in as much money as any visitor and do their deer herd no damage. Last year Michigan sold 1,804 non-resident licenses to archers and Maine is a close runner-up.

In summary, I would like to pass along a word of warning to the riflemen: If you should happen upon one of those whacky archers shooting at one of the numerous field courses dotted around the State, don't begin to question him about the bow and arrow or you're liable to find yourself standing watch in some deer woods with a bow in your hand, come next November.

Conspiracy

Something new: The Penal Law is applied to a violation of the Conservation Law

AT about 3:30 o'clock in the afternoon of July 21, 1953, one Clarence Chesebro observed four men netting minnows at the Williams Street Bridge on Sononda Creek in the City of Sherrill, Oneida County. Since the netting of minnows in this water is prohibited, Mr. Chesebro called the State Police. The State Police in turn notified Game Protector Stanley Stefanick, who impounded as evidence some of the minnows taken by the four men. At the scene of the arrest were discovered a large barrel containing a quantity of minnows, a tank which was probably an old oxygen tank, and two large minnow seines.

The four men were taken by Trooper J. J. Connelly before Justice of the Peace Harry L. Smith, and were arraigned on an information laid by Mr. Chesebro. Each of the four was charged with a violation of Section 229 of the Conservation Law, which prohibits the operation of minnow nets in waters inhabited by trout.

Upon arraignment, the men were identified as Leon S. Scott, Norris F. Brown, Billydean Brown and Edwin N. Patience. The defendants employed counsel and entered pleas of not guilty, after which the cases were adjourned for subsequent hearing.

Before such hearing was conducted, the same Norris F. Brown was observed on the morning of July 5th in the vicinity of Elmwood Place Bridge, again on Sononda Creek, with a pickup truck containing a large beer barrel and an oxygen tank. The observer was one Miss Laura Wilson, Attorney, at Sherrill, and a Confidential Law Clerk at the Court of Appeals. Miss Wilson proceeded to lay an information against Brown for illegally netting minnows, and then sought the assistance of the Attorney-General in the prosecution of this action. The Department of Law assigned an Assistant Attorney-General to the prosecution.

After the Assistant Attorney-General had conducted an investigation of the facts as gathered by Chief of Police Riley and had interviewed the various witnesses, it was decided to ask District Attorney John Liddy to present facts to the Grand Jury of Oneida County for the purpose of securing indictments. Co-operation between Mr. Liddy, the Conservation Department and the Department of Law (Attorney-General's Office) resulted in the presentation of evidence to the Grand Jury on the first of October, 1953. Thirteen witnesses—including Chief of Police Riley, Game Protector Stefanick, Miss Wilson and Mr. Chesebro—appeared before the Grand Jury, which returned indictments against all four men.

Norris F. Brown and Leon Scott pleaded guilty to the sixth count of the indictment, which charged them with *conspiracy* to commit a crime. A fine of $100 and imprisonment in the Oneida County jail for thirty days was imposed on Scott; a fine of $100 and imprisonment for four months were imposed upon Brown. The other two defendants, being under the age of 21, received suspended sentences.

Before the defendants were sentenced, County Judge Ezra Hannigan caused an investigation to be made of the defendants' records by Probation Officer Stanley Roberts, and it was upon Mr. Robert's report that Judge Hannigan based the sentences; Brown's record disclosed three previous settlements for violations of the Conservation Law, while Scott's record disclosed six.

Indictment for conspiracy—rather than for specific violations of the Conservation Law—was largely responsible for the imprisonment of these men. Conspiracy comes under Section 580 of the Penal Law, and has been defined in the courts as a "corrupt agreement between two or more individuals to do an unlawful act, unlawful either as a means or as an end."

It would thus appear than any violation of the Conservation Law which involves two or more persons conspiring to violate the law may be prosecuted not merely for the violations themselves, but for conspiracy.

Bureau of

A GOOD detective of the Dragnet variety ought to make a good wildlife research man. The theme song might have to be changed to "Down by the Old Mill Stream," but the gathering of evidence, the reluctance of the witnesses, and the odd hours of work make the two jobs seem alike. The research men of the College of Forestry's Huntington Wildlife Forest are the detectives in the case of the missing beaver, and they intend to get their beaver.

At our research headquarters on the 15,000-acre Huntington Wildlife Forest near Newcomb, we are often accused of being beaver lovers. And if concern with the problem of the management of beaver makes us beaver lovers, then we are guilty as charged. We are trying to clarify the true position of the beaver in the economy of the forest: What benefits do the beaver have in forest management? What harm do they do? How can they be managed to emphasize the benefits? How can the harm be reduced to the lowest possible point?

Like any good detective, we have to know the habits of our quarry. We have to know not only how many beaver there are in our 33 colony sites, but what the ages of the beaver in each colony are. So we have to put a "stake-out" on the beaver so we can keep a record of their activities.

Each year our dragnet brings in a number of beaver in our live-trapping program. These animals are permanently marked by putting numbered metal tags in their ears. Each time a beaver is caught it is weighed and measured so we know its rate of growth and changes in physical characteristics at different seasons. Beaver aren't too difficult to capture in live traps, and it follows that quite a little information is accumulating in our files about the marked beaver and their movements.

But many of our animals are caught once or a few times, and then aren't heard from again. And this mystery puzzles us: What happens to these marked beaver? We know that a few are caught by beaver trappers in the Newcomb area, probably a few are killed by predators, and we suspect that a few must succumb to disease. But even the most pessimistic figures for these losses do not account for the large number of marked animals that disappear.

Probably some of the apparent loss is not really a loss at all. Some of the beaver, after a few experiences with the live traps, may learn to avoid the traps —in the jargon of the detective, they "lay low." Beaver 529 seems to have done just that for 4½ years. She was an adult female on April 4, 1949 when first trapped and marked. At that time she weighed 42 pounds, and it is probable that she was at least three to four years old. Since that April day in 1949 the little bog lake where she was captured has been trapped many times and quite a number of beaver have been caught there. But Number 529 stayed away from the traps and we suspected that she had died or certainly moved away. But on November 5, 1953 Earl Patric, the Assistant Forest Biologist, caught her in a trap set at the exact spot where she was originally captured. Instead of gaining weight in the long interval she had lost five pounds, as she tipped the scales at 37.

We do know that some of the beaver marked on the Huntington Wildlife Forest go over the boundaries and are caught by fur trappers. Number 1598 recently proved this point when he showed up in a trap on Pine Brook, 1¾ miles from the pond where he was originally caught. Our first record on 1598 was on October 24, 1951. At that time he was 6½ months old and weighed 14 pounds. There are no other records of this beaver until he was caught in the steel trap, but we can make a sound guess what happened to him. If he was a typical young beaver, he stayed with his parents in the pond where he was born until late winter of 1953, when he was about 22 months old. Just before his mother gave birth to the 1953 litter of young, he left home to explore the Adirondacks and establish himself in a home of his own. He apparently had gone as far as Pine Brook when fate caught up with him. Perhaps he felt that if the world was as big on the other side as it was on the Pine Brook side, it was a mighty big place.

After many years of work with beaver, we know that records like that of Number 529 and Number 1598 indicate normal behavior for beaver. After birth the young stay with the parents for nearly two years in the home colony. Except for the dangers in the trapping season and the occasional dangers from otter, there isn't much to be called excitement. Life consists of a pleasant round of swimming and eating and learning how to do the things that all beaver must do around the lodge and the dam. Of course the danger of food shortage for the long

Missing Beaver

by Dr. William Webb,
N.Y.S. College of Forestry

winters is always there, and the fall days and nights must be spent in cutting, trimming, and storing the food supply for the entire winter. Then comes the time when the life of a young beaver is abruptly ended and the life of an adult beaver is started. Young 1598 (as with all other beaver before their second birthday) left home to wander for a short time and then take up mature responsibilities. Probably 529 is typical of the amount of wandering done in the years of adult life. Once a new home is established the beaver settles down to the responsibilities of building and maintaining a lodge and a dam, and raising an annual brood of three to four young and providing food for them.

We don't know the maximum distance that may be travelled in the yearling wandering period. Records to date indicate that usually it is not very far. The lack of records of long movements may be just one of those things that makes the job of wildlife research so interesting and so unpredictable; we recently got a return on one of our marked beaver that may be the first link in the chain of evidence on long range movements:

Beaver Number 502 has a perfectly normal record—up to a point. On September 5, 1948 when he was about five months old he was live-trapped and marked by Dr. John L. Buckley, who was then a graduate student at the State University College of Forestry. Number 502 weighed 11 pounds and was a very docile little fellow who didn't seem to mind having the little aluminum earrings put in his ears. The following April 6, Number 502 was again caught in the same pond, and apparently he had spent a good winter, for he then weighed 19½ pounds, a gain of 8½ pounds in 7 months and one day. It is probable that about a year after this he left the home pond for his period of yearling wandering. We don't have any records on him, however, as 502 joined the ranks of the missing beaver so far as the Huntington Wildlife Forest is concerned. But by a fortunate coincidence we do know where his wanderings ended. Number 502, with his numbered earrings still in place, was caught in a steel trap by Verne King of Indian Lake during the beaver trapping season of 1953. He had moved at least 17 miles from the place where he was born and had reached the ripe old beaver age of five years.

Number 502 was a long distance mover, but perhaps he got the wanderlust from Dr. John Buckley who marked him in the fall of 1948. Buckley wrote his thesis on beaver and then moved to Alaska, where he is in charge of wildlife research work at the University of Alaska.

With this evidence it looks as if we will have to inaugurate a bureau of missing beaver. It may be that many trappers in the Adirondack region have run across beaver with our numbered tags in their ears, and, if so, they must have wondered where they came from. In good police style we should send out the message: "Calling all trappers, calling all trappers. Be on the lookout for marked beaver. Report all information on tag number, weight, pelt size, date and location to the Huntington Wildlife Forest, Newcomb, New York."

Aerial Beaver Survey

DURING last fall and early winter an experimental survey from the air to obtain a census of beaver colonies in the northern part of the State was made. The region covered lay north of the line formed by the Oswego River, Oneida Lake and the Mohawk River. The purpose was to obtain colony data, and also to determine the type and intensity of survey coverage needed to follow trends of population in the future.

A 50 per cent sample of an area covering approximately 6,410,000 acres was flown. This meant that half this acreage was actually under direct observation from the plane. Timing of the survey was of utmost importance. The bases for determining the presence of beaver colonies were fresh cuttings, feed beds, house repair, and condition of dam and the water level behind it. Therefore, the flying had to be done in the period between leaf fall and snowfall.

The area was covered successfully during the limited period available. The pilot, John Schempp, and observer Edward Maunton spent a total of 135 hours flying time to cover the strips which had been plotted on the U.S.G.S. maps. They came up with a total of 1,279 colonies observed. Since this represented their findings on just half of the acreage being studied the true total was estimated to be double this figure, or 2,558 colonies. A ground check of a selected area still remains to be completed to confirm these calculations.

The cost of the survey was determined to be $3,409. However, following a study of the information it was decided that only a third as many lines needed to be flown in the future in order to obtain equally accurate information. Thus it appears that the future cost can be cut considerably.

The value of this sort of survey is readily apparent when it is recalled that most of the country surveyed so quickly and economically from the air is of a rugged topography and relatively inaccessible. To give equally good coverage on the ground would be very much more difficult, time consuming and costly. With this excellent start behind us, thanks to skilled pilot and observer, repeated annual surveys are planned to judge the effect of open seasons and trapping pressure, and to provide basic information in determining future beaver seasons.

—Arthur W. Holweg

DUCKS in New York

DURING the first three days of the 1953 hunting season, waterfowl biologists and other Department personnel checked samples of the hunters' bag both up-state (October 17, 18 and 19) and on Long Island (November 6, 7 and 8). The up-state season was ushered in with "bluebird weather," so that many hunted in shirt sleeves and the occasional unfortunate who misjudged water depths didn't go home shivering.

But opening day on Long Island was quite different. Waiting for the noon opening, the hunters were rejoicing in the prospects of rough weather which should have the birds flying. The hunters were not disappointed and the Long Island later season (in recent years the whole State has opened on the same day but based on data collected by the Department, the Fish and Wildlife Service finally agreed to zone Long Island in a later season) really opened with a bang. The elements, perhaps over-estimating how much was a good thing, provided winds of constantly increasing proportions so that by evening of the opening day a near-hurricane was in force and many hunters had difficulty in making it back to dry land. Winds and waves were still high the second day, and when beautiful weather finally came on the third day, both the hunters and the ducks were too tired to do much more than just sit, and shooting was desultory.

The 1953 season as a whole produced good shooting but, as always in duck hunting, some sportsmen found good flights, others poor. The best hunting the first three days this year was had in the Ontario-St. Lawrence region, where the average hunter bagged 2.2 ducks per hunter-day compared with the State average of 1.3 per hunter-day. Other regions however, such as the Finger Lakes, enjoyed better hunting in the late season. Study of the records available indicate that for the average year, the present seasons (1953) are very good—with the possible exception that it would be fairer to the Lake Champlain hunters to let them have an earlier opening date.

The results of the hunter bag check indicated that about 90 per cent of the ducks taken in early season were dabblers or marsh ducks, with only 10 per cent divers. This percentage changes as the season advances but still, throughout the season, dabblers provide close to three-fourths of the duck hunting. The early season records this year showed that the black duck composed over 40 per cent of the kill, with the mallard and woodduck nearly tied for second place at about 15 per cent each. Next in importance were the green-winged and blue-winged teal, each of which furnished about 8 per cent of the shooting. A smattering of other species provided the rest of the hunting, with the scaup or bluebills being the most frequently taken diving duck.

From a management standpoint the species distribution in the bag is very fortunate. Neither the knowledge nor the opportunity yet exists for the management of the divers which comprise the greater share of ducks which pass through New York. Much can be done and is being done, however, to increase the local production of blacks, mallards, and woodducks—which provide the lion's share of our hunting.

This year the daily hunting hours were lengthened to allow hunting until sunset. Previously the closing hour was an hour before sunset. Records taken from the hunter check during the first three days of the season showed that about 10 per cent of the bag of ducks were harvested in this additional hour. At the same time, the ducks soon learned to stay out of the marshes until the later closing hour, and it is doubted that the total season take was materially increased by this extra hour.

The use of dogs in duck hunting was found of definite value. Upstate, only 12 per cent of the hunters used dogs, while on Long Island over 30 per cent used them. In both regions success was nearly doubled with the aid of dogs and only half as many ducks were reported lost as cripples.

Just where these ducks which provide the New York hunting are reared, where they winter and how long they remain in the State is still too much a matter of conjecture, but each year the degree of the unknown is being reduced through banding studies. This year nearly 7,000

ducks were banded at trapping stations distributed over the State, bringing to approximately 38,000 the total number of wild ducks which have been marked. Recoveries of over 5,000 of these birds by hunters who have reported banded birds have shown how complex the movements of ducks is. Still more banding will be required before the final answers will be available. A most recent development which is very encouraging is the initiation of a co-ordinated banding program to get this information with the states, provinces, federal and dominion waterfowl agencies and private organizations co-operating. At the peak of migration some of these birds may stop for only a day or so in New York, while others may linger for three or four weeks —and a very few may stay from September to December before continuing their winter cruise.

The annual culmination of waterfowl investigations is the "Mid-winter Inventory" held each year in January. All the states in the Atlantic Flyway participate and a comparison of records from year to year permits formulating a final estimate of how the population is getting along—if the weather during the breeding season has been favorable and whether hunting season regulations have been too liberal or too stringent. This January (1954) the New York mid-winter aerial counts showed more ducks (168,904) than any year since 1950, but broken down by species the number of dabbling ducks (31,013) was about average, and the increase was largely in the divers (108,998). Geese and brant (18,061) also showed an increase, while mergansers and coot (10,832) were fewer than usual.

Some significance can be read into these figures from a State level. But those interested in waterfowl hunting must never lose sight of the fact that waterfowl, as a migratory group that travel the whole continent, must be managed and hunted as a joint enterprise of the states and with our neighbors to the north.

—Dirck Benson,
Don Foley, Don Schierbaum,
Wildlife Biologists in waterfowl

Hare Transfer Program

The experimental attempts some years ago to re-establish varying hares in suitable habitats followed a realization that much of the State's area which had once supported hare populations could now support them again. Generations ago, as the forest cover was removed in the course of settlement, the varying hare disappeared from large sections. But in the last few decades, conditions have again become favorable for hares as land was abandoned for agriculture and was recovered with natural growth, or by reforestation.

But the complete disappearance of the varying hare in wide areas made it desirable to give the species an assist, by properly planned stocking, to speed its reoccupation of suitable range. The first such experimental attempts (in Cortland County) had been successful, and the experience gained there served to guide the way in the expanded effort that now seemed feasible.

An excellent source of stock for use in the re-establishment attempts was suggested by the ability to penetrate (with a snowmobile) remote Adirondack areas —where a large hare resource lies virtually unharvested by hunters. Refuges are another lucrative source of liberation stock.

A preliminary operational plan was drawn up and pushed into operation in 1951-52 to take advantage of existing high levels of Adirondack hare abundance as the source of stock. District Game Managers drew up plans for hare liberations on selected areas devoid of hares, which were typical of the environment in which experimental success had been achieved. District Managers John Wilson and Greenleaf Chase of the Adirondack section organized crews, equipment, and transportation schedules, and trap lines were established where removal of hares would not prejudice hunting opportunity.

Between January 15 and March 15, 1952, 454 hares were transferred to 17 areas in 13 different counties. The following year, from January 14 to March 13, an additional 476 hares were released on 16 areas in 13 counties. In all, 27 different areas in 19 counties received an allotment of hares. (There were some duplicate stockings made.) Unfortunately, the vagaries of weather, and the risk of exorbitant losses if trapped hares were kept in crates longer than four days, resulted in several areas being stocked with less than the 15 pair goal set as a minimum.

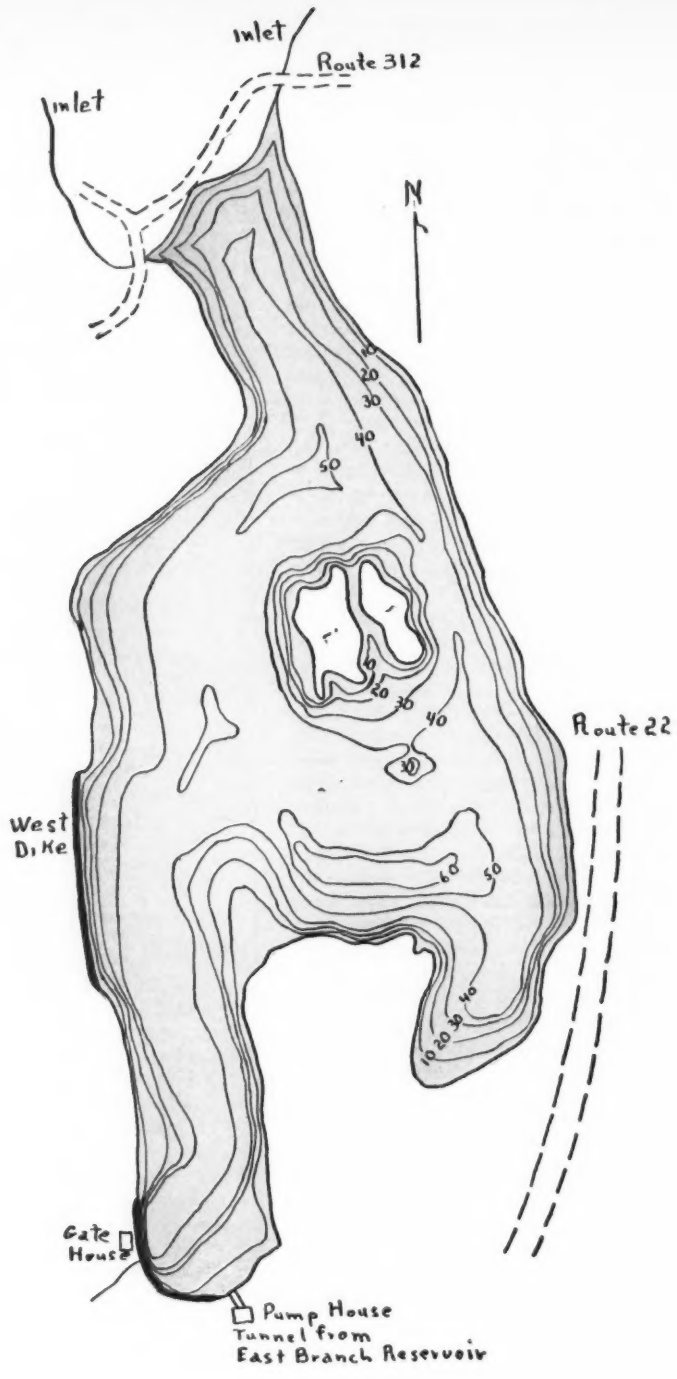
The objective of re-establishing the varying hare in these areas, substantiated by experimental success, is very simple: To provide enough breeding stock over and above the critical break-even point between survival and production on the one hand and losses on the other, to allow the proven natural fecundity of the species to take over and populate the surrounding area. In any attempt to shift hares from coverts where they are familiar with the escape and forage possibilities to coverts of unknown possibilities, initial losses can be expected to be even greater than the normally rapid turnover rate of the species. Initial failure, therefore, often can be attributed to understocking—and is not necessarily indicative that the environment is unsuitable. On the other hand, once breeder populations have successfully surpassed the break-even point, no further stocking should be necessary, and none is contemplated in this program.

Trapping operations were suspended this past winter to allow an evaluation of results to date in order that the future course of the program might be planned accordingly. Although some areas could not be surveyed adequately to plot the limits of hare occurrence and relative track abundance, all districts in which releases were made were surveyed to the extent that snow conditions and time limitations would allow.

Reports indicate that a few areas are demonstrating the same pattern of increase in numbers and spread from release points as was exhibited in the successful experimental releases. In a few areas initial liberation stock has apparently disappeared. In most areas success or failure appears to hang in the balance with some survival and reproduction having taken place, but with late winter population levels (as indicated both by track abundance and in some cases trap surveys) at a low point. There is evidence to indicate that illegal shooting by hunters has been an important factor in holding down the number of breeder survivors during the early critical stages of the re-establishment program on some areas.

—Joseph Dell

Bog Brook Reservoir



LOCATION:
Southeast Putnam County.

PHYSICAL FEATURES:
Area: 410 acres.
Elevation: 420 feet.
Maximum depth: 63 feet.
Length: App. 2 miles.
Maximum width: App. 3/8 mile.
Watershed area: App. 4 square miles.

FISH PRESENT:
White perch—very abundant.
Smallmouth bass—common.
Largemouth bass—common.
Yellow perch—few.
Calico bass—common.
Rock bass—common.
Red-bellied sunfish—few.
Bluegill sunfish—common.
Bullhead catfish—few.
Chain pickerel—few.
Carp—few.

REGULATIONS:
N. Y. State fishing license required.
N. Y. City Dept. of Water Supply, Gas and Electricity fishing permit required.
Seasonal boating permit for approved rowboats required.
Rules and regulations governing fishing and boating may be obtained from Southern Fisheries District Office, 311 Mill Street, Poughkeepsie.

GENERAL:
Steep sided, little shoal area: subject to water level fluctuations up to 30 feet.
Principal recharge through tunnel from East Branch Reservoir.

—FRANK TOMAN

Shad in the Hudson

by G. B. Talbot,

Chief, Middle Atlantic Fishery Investigations, Fish and Wildlife Service

EVERY year around the last week in March an old industry begins anew in one of the biggest and busiest harbors of the world. This is the Hudson River shad fishery. Each spring, beginning in the lower Hudson against a back-drop of New York City's skyscrapers and continuing upriver to the vicinity of the City of Hudson, shad fishermen undertake to harvest this delectable fish in the same manner they have followed for some 300 years.

Shad are the largest members of the *Clupeidae* or herring family in the United States and must ascend streams into fresh water to spawn. They congregate near the mouths of rivers each year to make the spawning run. The time of run depends upon the latitude; i.e., the prevailing temperatures. In the St. Johns River in Florida, for instance, the migration begins as early as November and reaches its peak in December or January. Farther north in the Carolinas the run reaches its peak in February or March, while in the Hudson River the bulk of the fish arrives in April. The range of this fish extends as far north as the St. Lawrence River in Canada, where the run occurs in June.

In the Hudson River during March when water temperatures are still a frigid 35° F., fishermen near the mouth of the river drive long lines of hickory poles into the river bottom. Modern mechanization has not influenced this fishery and the poles are still driven by lashing on a cross bar upon which the fishermen jump in unison, forcing the poles into the river bottom. The poles are spaced about 30 feet apart and support gill nets up to 1,200 feet long. In recent years the U. S. Army Engineers have designated separate areas for fishing and for navigational purposes so that both can be carried out simultaneously with a minimum of conflict.

Gill nets with a stretched-mesh size of around 5½ inches are hung on the lower or downstream sides of the poles just before the flood tide begins. The nets are removed at high slack tide, the fish removed, packed in boxes and iced for shipment to market. Bucks (males) and roes (females) are packed separately since the roes contain the eggs and bring a much higher price. The catch by sex is nearly equal but since the roes average a pound or two more than the bucks the total poundage of roes landed is considerably higher.

Those shad which escape the nets in New York harbor continue up the Hudson into Haverstraw Bay. Here, stake nets are set in the shallow areas of the Bay, but since the river velocity is not as fast as in the lower river the nets are fished on both the flood and ebb tides. Because of the greater width of the river, however, these nets occupy a smaller proportion of the stream than the stake nets below, and catch fewer fish per net.

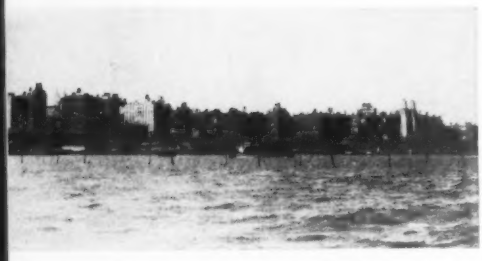
Above Haverstraw Bay and extending to the City of Hudson, shad fishing is done almost entirely by drift gill nets. These are placed in the river during flood or ebb tides from skiffs usually carrying two men, and are set so that the net will not encounter snags or other obstructions during the drift—which may be for a period up to two hours.

The nets are usually removed from the water at slack tide and hauled into the skiffs. If the water is clear, fishing is carried out at night, but if turbid conditions occur, fishing is done also during the day. Many of the fish caught upriver are purchased locally by nearby residents who eagerly look forward to obtaining the first shad of the season. Shad buyers purchase the balance and haul them to market by truck.

Some fishing is still done with haul seines. This method is gradually losing favor with the fishermen since a large crew is necessary and the profit per fisherman proportionately less. However, several of these still operate where sandy beaches allow the net to be hauled ashore and the catch removed. Often, many of the local residents will help with the haul to obtain fresh fish.

During the month of May when the water warms to above 50° F. shad begin to spawn. This activity takes place in the river principally between the cities of Hudson and Kingston. The eggs are broadcast loosely in the water by the roe shad and are fertilized by a buck swimming near her. After absorbing water the

Biologists, using a drift net, tag and release shad near river mouth to continue up-river spawning run.



Stake gill nets set in Hudson off Manhattan produce large catches when shad run is good.

Hudson River shad fishermen engaged in hauling a seine near Village of Athens.

Roe shad caught by fishermen in haul seine. Note tag on fish just below dorsal fin. Tag consists of two colored plastic discs held by nickel pin in center.

eggs are about ⅛ of an inch in diameter and are slightly heavier than water. They gradually settle to the river bottom where they are carried back and forth with the tide which affects the Hudson River as far up as the dam at Troy. The eggs hatch in 5 or 6 days and the young shad spend their first summer in the river. In the fall during October and November when the water begins to cool, the young shad move down the river to the sea, where they remain for the 4 to 5 years required to attain maturity.

During their stay in fresh water, adult shad eat practically nothing and by the time they have spawned they become emaciated. When caught by the fishermen these fish are called "downrunners," "racers" or "slabs." When they become numerous in the catch fishing usually ceases for "racers" have little value. Those shad which aren't caught drift and feebly swim back to the ocean where they regain their strength and, if all goes well, they return again to the river the following spring.

Among the fishermen each year the big question is: "How will the shad run this year?" This is a good question, for the catch has fluctuated widely during the last 39 years during which good statistics have been kept. Even before 1915 there are records of "good" and "bad" years. For instance, Hudson River catches exceeding 4 million pounds between 1885 and 1890 are recorded. Then, in spite of the help of a shad hatchery with a production of 4 million to 17 million shad fry each year, the run began to drop off. By 1916 only 40,000 pounds were caught. The catch increased somewhat in the years following but remained fairly low until 1936 when the catch increased tremendously, and for the next ten years annual catches of around 3 million pounds were made. These large catches came at an opportune time, for during the World War II meat shortages, fish brought a good price and fishermen benefited accordingly.

After 1946, however, the runs of shad decreased again, and because the shad runs along the entire Atlantic Coast had also diminished, the Atlantic States Marine Fisheries Commission sponsored a coastwise study of this fish to determine methods of increasing and stabilizing the catch. This research project was begun in 1950 on the Hudson River by the U. S. Fish and Wildlife Service in co-operation with the New Jersey and New York Departments of Conservation.

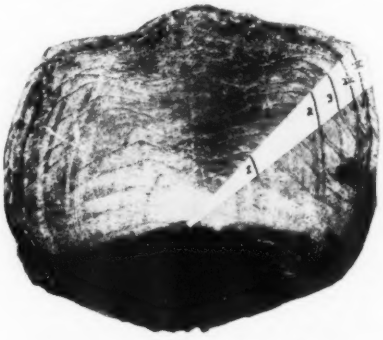
A report on this research project has recently been completed, and is briefly reviewed here.

The total number of shad entering the river in 1950 was estimated by catching, tagging and releasing a percentage of them at the mouth of the river. A portion of these tagged fish were later captured by the fishermen along with those not tagged. Therefore, a ratio of untagged to tagged shad was obtained. The tag ratio was mutliplied by the number of tags affixed, which gave the estimate of total run.

The efficiency of each type of fishing gear was determined from an analysis of the catch by each. The total of all kinds of gear used was converted into "standard fishing units." Since data were available on catch and amounts and kinds of gear used each year for the past 39 years, it was possible to calculate the total standard fishing units for each of these years and to estimate the total size of run for each of these years by proper statistical procedures. An estimate of the spawning population or "escapement" for each year was then determined by subtracting the catch of each year from the estimated size of run for each year. The total size of run is much superior to the catch records for determining changes in the amount of shad present each year, since catches which depend upon the number of fishermen as well as the number of shad present, are sometimes misleading.

A sample of scales from a percentage of the shad caught by commercial fishermen was obtained throughout the season. From these, the age and number of times the fish have spawned can be read with the aid of a microscope. It was found that the greatest percentage of shad returned to the river and were caught at 4 and 5 years of age and that about 50 per cent of those caught had spawned previously and were returning to the river as "repeaters." With this information it was possible to study factors suspected of being responsible for the fluctuations in abundance of Hudson River shad.

A study of the dredging records of the



Scale from 6-year-old shad shows method of determining age. Arabics indicate marks made during winter in sea. Roman numerals show spawning marks formed during two migrations.

U. S. Army Engineers was made to determine if dredging has been detrimental to the shad runs. This showed that the greatest removal of material had occurred in the Hudson River between 1928 and 1932 when the river was deepened to allow ocean-going freighters to navigate as far as Albany. After dredging, the numbers of large ships using the river increased greatly. No correlations were found, however, between dredging or ship traffic and the size of subsequent shad runs.

Water temperatures and river discharges were also studied but no relationships to subsequent shad runs were discovered.

From an analysis of the shad hatchery records and information concerning the fecundity of shad, it was discovered that shad hatcheries as operated in the past had no influence on shad production, or if any, it was deleterious rather than helpful.

In 1951, with the help of the New York Health Department a water quality study was undertaken of the river between Troy dam and the mouth of the river. This entire section of the river was found to be seriously polluted, particularly below Albany and Troy, Poughkeepsie and New York City, all of which dump untreated sewage into the Hudson. Work has already begun on cleaning up the river below Bear Mountain Bridge by the Interstate Sanitation Commission, and the job is expected to be completed by 1959. Coincidentally the New York State Water Pollution Control Board has completed an intensive pollution study of the Hudson River. Their findings, which will be published in the near future, will be the basis for public hearings, scheduled this year, to determine the establishment of water purity standards upon which a progressive program for the abatement of pollution in the Hudson River will be undertaken.

In all probability productivity and certainly quality of fish would improve if pollution was cleaned up. This, incidentally, would greatly enhance the recreational value of this stream, for all of the many beautiful swimming beaches have by necessity been closed for several years because of the menace to health by pollution.

Since estimates of the spawning populations were calculated for each year it was possible to determine if there was any relation between these and subsequent size of shad runs. It was known from the age readings of the scales that the progeny of the fish spawning 4 and 5 years previous to any run make up the bulk of the catch, and also that the adults escaping the fishery the year before made up a large portion of the fish caught each year. Therefore, a comparison between the size of run each year with the spawning population 5, 4 and 1 year previous was made by a statistical process called a multiple regression analysis. This showed that 85 per cent of the fluctuations in abundance of shad are associated with changes in the size of spawning populations. The question has been raised as to whether this is a casual relationship, and if so, which is cause and which is effect. All available evidence, however, seems to point to the fact that the population size depends upon the spawning populations. Further work in progress should clarify this point.

The conclusion reached in this study, assuming that size of spawning population does control population size, is that this fishery can be stabilized at a high productive level by allowing the optimum number of shad to escape the fishery each year to spawn. This can be achieved by regulating the commercial fishery by closing the waters to fishing for appropriate periods each week. This should work no hardship on the fishermen, for this is truly a case of being able to eat your cake and have it too—those shad which are not caught, but allowed to spawn, produce fish which return to the river predominantly 4 and 5 years later, and they themselves return to the river the following year as bigger and better fish ready to be captured.

With the aid of scientific research, proper regulation and conservation measures, it would appear that this old and picturesque fishery can continue to compete with modern civilization and will continue to produce for countless years to come.

Shad Management

BOTH the economy and the dinner menu of New Yorkers have benefitted since Colonial days from the recurrent spring spawning run of shad in the Hudson River. Scattered historical references leave the impression there were years when there was hardly enough water in the Hudson to accommodate the silvery horde of shad as they pushed upstream to their spawning grounds. By 1913 however, the first year of record keeping by the Conservation Department, the commercial catch amounted to only 87,114 pounds in the upper or New York portion of the river. From that year to 1935 the catch varied from a low of 24,209 pounds to a high of 452,277 pounds. In 1936, however, the catch rose to slightly more than a million pounds and held at that high level through 1949, with two years, (1944 and 1945) at better than two million pounds.

Then, in 1950, the catch dropped to 471,068 pounds; less than 50 per cent of the previous 14-year average. Meanwhile, however, far-seeing legislation had been enacted permitting the Department, whenever the shad catch fell below an established poundage considered to be a safe minimum, to impose such management measures as to lengths and types of nets, compulsory lift periods, licenses, closed season, protected waters or other like measures as appeared necessary to protect and recoup the fishery.

Acting in concert with the State of New Jersey, whose fishermen along the lower Hudson annually harvest an equal or greater poundage of shad than New Yorkers, new regulations were adopted prior to the 1951 shad season increasing the weekly lift or no-netting period from 36 to 72 hours. On the basis of information then available to fisheries biologists of the two states involved, the increase in lift period appeared to offer the best means of assuring a greater escapement of shad spawners; i.e., allowing a greater portion of adult fish to escape capture and reach the upriver spawning areas. These regulations, with minor changes, have been continued by New York and New Jersey since 1951 and there is good evidence, from netting records, that the increased lift has been effective in achieving the objective.

It is gratifying to find that the intensive shad study, conducted by the U.S. Fish and Wildlife Service and reported in the accompanying article by Dr. G. B. Talbot, verifies our earlier assumption that fishing pressure is of major importance in determining the size of future shad runs.

The Hudson River shad runs of 1955 and 1956 are being eagerly awaited not only by shad fishermen but by fisheries men of New York and New Jersey. If, as hoped, increased spawning opportunity was afforded beginning in 1951 by the increased net lift period established, and conditions were favorable for the survival and growth of the young of that year, they should be making their first return as adults to the Hudson to join the spawning run next year and the year after.

—A. W. BROMLEY

EVENING PRIMROSE Rushford, N. Y.

SHEEP'S LAUREL Minerva, N. Y.

GIANT

COLTSFOOT Moravia, N. Y.

WHITE TRILLIUM
Olean, N. Y.

DUTCHMAN'S BREECHES

Au

WAKE ROBIN Rochester, N. Y.

PICKEREL WEED Kinderhook, N. Y.

FALS

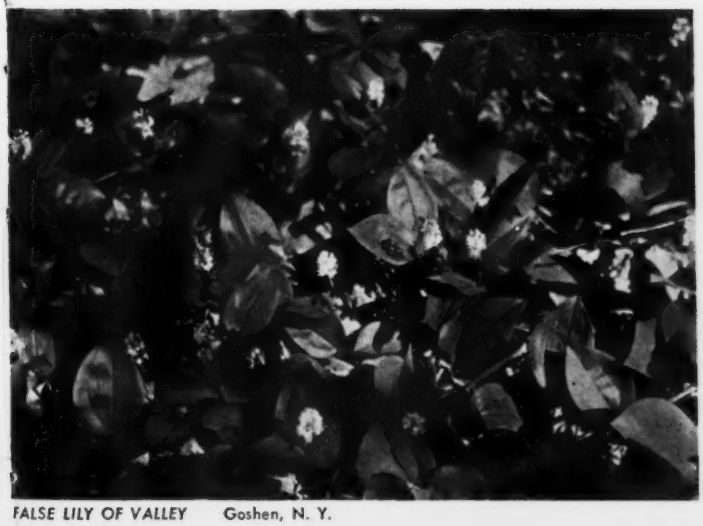
GIANT SOLOMON'S SEAL Ithaca, N. Y.

WILD CRANESBILL
Oneonta, N. Y.

FLOWERING DOGWOOD
Castleton, N. Y.

ES Aurora, N. Y.

FALSE MITERWORT DeBruce, N. Y.



FALSE LILY OF VALLEY Goshen, N. Y.

TIGER LILY Raquette Lake, N. Y.

Brook trout from reclaimed pond near Indian Lake

Trout Restoration Program

BRIEFLY, the Adirondack Trout Restoration project is an experimental program designed to reclaim former trout waters that are now inhabited by undesirable introduced species of fish. Chemicals containing rotenone are used to completely eradicate all fish life, and this is followed by the stocking of trout. Background material pertaining to this project has been described in two previous issues (April-May, 1951 and June-July, 1952).

To date, a total of 30 ponds have been reclaimed under this program and six additional ponds have been treated under Dingell-Johnson Project F-5-R. The accompanying table gives the name and location of all ponds reclaimed to date under these two programs.

In general, it has been found that most ponds will be ready for trout stocking sixty days after treatment. An occasional pond, however, will remain toxic to trout for almost a year. For the past two years, emulsifiable rotenone 5 per cent (liquid) has been used exclusively, although it is planned to experiment with new chemicals as they appear on the market. Suitable lightweight equipment has been assembled to operate efficiently on "back in" waters, but a tremendous amount of labor is required to pack the boats, motors, pumps, rotenone and other miscellaneous equipment to the water. On occasion, airplanes have been used to lighten this laborious task.

One of the most important aspects of any reclamation program is the construction of barrier dams to prevent undesirable species of fish from re-invading waters treated. The accompanying photograph shows a type of barrier dam built on the outlet of 340-acre St. Regis Pond.

Growth and survival of brook trout, which have been stocked in various sizes and ages, has been found to be above average in reclaimed ponds. Although most of the stocking has been done with brook trout, one pond was stocked with a combination of brook and rainbow trout in 1953, and another will be stocked with the combination in 1954. While it appears, to date, that best results can be expected by stocking fall fingerlings at 100 to the acre in late September, at least one pond has given excellent results from spring fingerling stocking. The stocking of legal fish has also given good results, but is only considered necessary for the initial stocking in order to provide immediate returns to the angler. Growth data has shown that the fewer the trout stocked per surface acre, the better the growth rate will be. Such studies in reclaimed ponds have practical applications; in one pond, the stocking rate was changed from 150 to 100 trout per acre in an effort to bring more second-growing-season fish into the anglers' creel and to decrease angling mortality caused by hooking sub-legal trout. Growth in these ponds can best be described by the accompanying photograph of brook trout caught in a reclaimed pond near Indian Lake.

To further our knowledge of what takes place in these waters after reclamation, a partial creel census has been conducted each Saturday and Sunday and on random week days during the first six weeks of the trout season on 50-acre Mountain Pond, located in Franklin County. This roadside pond is being stocked at the rate of 200 fall fingerling brook trout per acre. During the census period in 1952, 1,074 anglers caught 733 trout representing a yield of three pounds per acre, while in 1953, 1,556 anglers caught 1,006 trout with a yield of five pounds per acre. It is planned to vary the stocking rate in this pond, to see its effect upon the number of fish and the yield per acre to the angler.

Where observation, angling, and netting for two years following reclamation have failed to find any species of fish other than stocked trout present in a reclaimed pond, it would appear to be a reasonable indication that reclamation had been successful in eliminating the existing fish population. On this basis we can evaluate the 18 ponds treated during 1950 and 1951 as follows: Successful in 10; successful to the extent that non-native species were eliminated in 5; unsuccessful in 2. The eighteenth pond had waters flowing into it that contained native species of fish, and therefore it was expected that these species would reappear. However, the introduced yellow perch have apparently been successfully removed from this water.

It is not certain that reclamation techniques were at fault in several of the ponds not classified as successful. Of the five waters where introduced species were eliminated, but minnows were not, a Game Protector apprehended an angler dumping a pail of bait in one pond and another showed up with a species of minnow that was not present when the pond was treated. In the two ponds that are classed as unsuccessful, beaver flooded over the barrier dam on one and the other pond had no barrier dam on the outlet. At any rate, alibis notwithstanding, we know that there are certain waters in which it is impossible to obtain complete kills using our present methods and chemicals.

The history of a pond reclaimed in 1948 is worth mentioning, especially with regard to the effect of introduced species upon the growth rate of brook trout. (The growth data is for one-winter-old brook trout sampled in the fall of the year for four consecutive years.) In 1950 the trout averaged 11.2 inches in length with bullheads present; in 1951 they averaged 10.0 inches in length with bullheads present; in 1952 they averaged 8.8 inches in length with bullheads and horned dace present; and in 1953 they averaged 7.5 inches in length with bullheads, horned dace, golden shiner, common shiner and suckers present. How these various species of fish re-entered this pond is not known, but for those few individuals who still think brook trout need forage in the form of fish flesh to make good growth, the plummeting growth rate in this pond coupled with the presence of additional species of fish

Barrier dam at the outlet of St. Regis Pond. Conservation Department trail follows bridge over top of this dam.

Ponds Reclaimed in the Adirondacks as of 1953

Pond	County	Town	Quadrangle	Size (acres)
Bass	Essex	North Hudson	Paradox Lake	39
Big Cherrypatch	Essex	North Elba	Lake Placid	13
Grizzle Ocean	Essex	Ticonderoga	Paradox Lake	23
Hatch	Essex	North Hudson	Paradox Lake	10
Huntley	Essex	Minerva	Newcomb	39
Moose Mountain	Essex	North Hudson	Paradox Lake	38
Owen	Essex	North Elba	Lake Placid	18
Oxshoe	Essex	Schroon	Paradox Lake	15
Shingletree	Essex	North Hudson	Elizabethtown	4
Trout	Essex	Moriah	Elizabethtown	6.5
Black	Franklin	Santa Clara	St. Regis	25
East Pine	Franklin	Santa Clara	St. Regis	70
*Grass	Franklin	Santa Clara	St. Regis	15
Horseshoe	Franklin	Santa Clara	St. Regis	90
Little Polliwog	Franklin	Santa Clara	St. Regis	18
*Lydia	Franklin	Santa Clara	St. Regis	20
Mountain	Franklin	Santa Clara	St. Regis	15
Mountain	Franklin	Brighton	St. Regis	50
*Otter	Franklin	Santa Clara	St. Regis	1.6
Pond 154	Franklin	Santa Clara	St. Regis	4
Rock	Franklin	Harrietstown	Long Lake	19
Slush	Franklin	Brighton	St. Regis	15
*South Otter	Franklin	Santa Clara	St. Regis	5
*St. Regis	Franklin	Santa Clara	St. Regis	340
*Tuesday	Franklin	Santa Clara	St. Regis	5
*Whipple	Franklin	Santa Clara	St. Regis	6
Holmes	Fulton	Bleeker	Gloversville	15
Stewart	Fulton	Caroga	Gloversville	30
Bullhead	Hamilton	Indian Lake	Newcomb	20
Center	Hamilton	Indian Lake	13th Lake	15
Clear	Hamilton	Indian Lake	13th Lake	18
Constable	Hamilton	Long Lake	Big Moose	45
Jockeybush	Hamilton	Arietta	Piseco Lake	32
Mason	Hamilton	Lake Pleasant	Indian Lake	85
Mays	Hamilton	Long Lake	Big Moose	30
Leonard	St. Lawrence	Colton	Childwold	51

*Reclaimed under Dingell-Johnson Project F-5-R.

should convince them that the opposite is true.

Summary

A management method has been developed whereby fish populations can be completely eradicated in certain types of Adirondack waters. In other waters it appears impossible to eradicate native species and occasionally introduced non-native species. It is thought practical, however, to reclaim ponds in which food and chemical conditions are somewhat marginal for trout, particularly if all fish life can be removed. If a complete kill of introduced species such as perch, bass, pickerel or northern pike is not effected, trout fishing can generally be expected to deteriorate within five years. While this might be considered feasible management in areas with little or no brook trout fishing, it is not too practical a procedure in the Adirondacks, and all methods and efforts should be applied towards obtaining a *complete* kill.

It is planned to reclaim additional ponds in future years. Emphasis of the work will be placed upon the possibility of doing larger waters, perfecting present techniques, experimenting with new chemicals as they become available, continuing growth studies and creel census work and keeping informed as to the progress other agencies are making.

—Robert G. Zilliox,
Adirondack Fisheries District

Size Limits on Trout

How size limits affect the wise use of one of our native resources. What has been done.

FOR a number of years prior to 1937 the minimum size limit for trout in New York State was six inches—with the exception of a few counties where a seven-inch limit prevailed. In that year, however, the size limit was raised to seven inches, Statewide, and that regulation has remained in effect to the present time.

The change to seven inches was prompted by concern over the increase in fishing pressure which was taking place. More and better transportation facilities and more leisure time were making it possible for more people to fish more trout waters, particularly waters which had previously been considered relatively remote. Fishermen and those responsible for the management of our fisheries felt that all necessary precautions should be taken to insure the future of trout fishing. It was assumed that an increase of one inch in the minimum size limit would permit more trout to spawn at least once and thus increase natural reproduction.

At present, the role of a minimum size limit in trout management is a controversial matter. Experience has definitely demonstrated, however, that the seven-inch limit is unsatisfactory from the standpoint of wise use of the brook trout resource in New York State.

There is a good reason for this. The majority of our brook trout waters are small headwater streams. In these streams, conditions are generally favorable for the reproduction of trout. The ability of such streams to *grow* trout, however, is quite limited—due to their small size and relatively low fertility. The end result is that these streams usually develop large populations of small slow-growing or stunted trout, many of which mature and spawn at a length of four to six inches.

Only a small percentage of our brook trout waters produce many trout seven inches or larger. On the contrary, the majority of streams produce only a small number of trout over seven inches and some produce almost none. The effect of the seven-inch limit, therefore, has been to lock up this valuable resource, since a large percentage of brook trout in many streams have grown up, matured and died without ever becoming legally available to the angler. Certainly, this is not sound management.

There are a couple of other points which are pertinent to a discussion of the management of small brook trout waters. One is the possibility of improving the growth of trout in small streams through intensive management, and the other is the importance of small waters as feeder streams in stocking larger waters.

With reference to intensive management, consideration has been given to the possibility of thinning the trout population in these streams in an attempt to provide better conditions for growth, and also to the possibility of removing small trout from these waters and transplanting them to larger waters. But such operations have not proved practical for a number of reasons. New York State has several thousand miles of small trout streams. This mileage consists of a large number of streams, many of which are

The Native Trout

not readily accessible. Under these conditions, the costs of intensive management operations are so high as to be prohibitive at the present time.

The importance of small streams as feeder streams in furnishing stock to larger waters has also been investigated. Studies made in this country and Canada indicate that, except in special instances, the trout present in small streams do not contribute significantly to the trout population of larger waters. Trout populations in small streams apparently have a limited range of movement. It should be noted, also, that many small streams flow a number of miles before entering a large water—and then discharge into a water which is unsuitable for trout. The available evidence indicates that protecting trout populations in small streams in the hope that they will serve as a supply for larger waters is a waste of fish.

Sportsmen, largely on the basis of their own observations, have come to the same conclusion as the Department with regard to the unsuitability of the seven-inch minimum size limit for brook trout. They have found that a stream which was a "short-trout" stream one year, was a "short-trout" stream the next year, two years following, five years following, and so on. As a result, they have worked through their fish and game clubs, county federations and the New York State Conservation Council to change the seven-inch size limit. They were instrumental in bringing about passage of a bill by the 1953 Legislature which gave the Department the authority to fix the minimum size limit for trout in twelve northern counties.

Following passage of this legislation, the Department's District Fish Management Offices serving the twelve northern counties undertook a study of the problem, including a review of all available information, to determine what size limit should be set. In the course of their investigations they considered many points:

1. What size limit should be set? The seven-inch limit had proved unsatisfactory. The choice, therefore, appeared to be between a six-inch size limit or no size limit at all, since there was judged to be no realistic basis for a specific size limit less than six inches (say, three or four inches). There was information to indicate that no size limit would probably be the best management policy for a number of streams, particularly for the smaller streams. It was decided, however, that rather than make such a major change now, it would be sounder to first find out how much improvement could be obtained under today's fishing conditions from a reduced size limit. Thus, a six-inch size limit was recommended.

2. Should the six-inch limit apply only to brook trout, or to browns and rainbows also? Consideration of this question brought forth the following pertinent information. Brook trout are the most prevalent species of trout in these northern counties. A review of available field data indicates that there are few if any waters in which a six-inch size limit would adversely affect the management of brown and rainbow trout. Moreover, it is difficult for the average fisherman to distinguish between the three species of trout in the smaller sizes. It appeared, therefore, that different size limits for the different species would involve additional regulations and promote confusion in the minds of the fishermen, without being of real benefit in management. Consequently, it was recommended that the six-inch size limit apply to all three species of trout.

3. Should certain waters be excluded from the application of the six-inch size limit? There are some waters, particularly ponds and the better parts of good trout streams, where slow growth is not a problem. It was judged, however, that it would work out most satisfactorily if the reduced limit applied to all waters in a county.

Even in the case of waters where growth is satisfactory, it has been found that trout in the upper reaches and tributaries often exhibit slow growth. However, application of the six-inch limit only to sections of a stream would be impractical because of the difficulty in establishing well defined boundaries which could be readily observed by the angling public. Again, it was felt that the number of instances where a reduction in size limit was not needed was not sufficient to justify exceptions to the regulations.

On the basis of these considerations, the Department adopted an order setting the minimum size limit for trout at six inches in Clinton, Essex, Franklin, Fulton, Hamilton, Herkimer, Lewis, Oneida, Saratoga, St. Lawrence, Warren and Washington counties. The new size limit is effective April 10, the opening day of the trout season.

It should be pointed out that it is not expected that the six-inch limit will completely solve the problem of slow growth and stunting in our brook trout waters. Experience with the operation of this new limit will be required to determine just how successful it will be in improving present conditions. It should help, however, in making a large percentage of naturally produced trout available to the angler.

This point could be illustrated by data from a number of waters, but one example will suffice. Bear Creek in Oneida and Herkimer counties is a little larger than many brook trout streams. The growth rate of trout in it, while not good, is better than in many smaller streams. In a sample of 40 trout taken by angling last June, 10 per cent were over seven inches and 60 per cent were between six and seven inches. Thus, only 10 per cent were available to the angler under the seven-inch limit—as compared with 70 per cent which would have been available under a six-inch limit. Equally important is the fact that most of the trout between six and seven inches were mature fish in their third growing season. Studies have shown that the survival of brook trout to their fourth growing season, in streams, is normally small. Consequently, it could be anticipated that with a seven-inch limit many of these trout would be lost through natural mortality.

IN summary, we have attempted to point up some of the numerous complexities involved in setting a size limit which will accomplish its intended purpose. In the past, size limits were of necessity set without the benefit of much factual information—and often on the theory that a large size limit would provide more and bigger fish. Studies and experience have shown this premise to be unsound. Ideally, a size limit should be based on detailed knowledge of the conditions in the particular water to which it is to be applied, but that could lead to large variations in regulations even for waters in the same area. In practice, therefore, it is necessary to strive for size limits that will meet as nearly as possible the requirement of being biologically sound and at the same time workable from the standpoint of observance and administration.

In developing the present regulation, an effort has been made to consider all pertinent information. Data obtained on trout streams over a number of years in this and other states have been carefully reviewed. The question of how the new size limit will affect individual waters in the twelve counties has been studied, and the whole subject has been thoroughly discussed with fish and game organizations on numerous occasions. We know that the new regulation is not perfect, but feel that it is as sound as it can be made on the basis of present information. We plan to follow the results of its operation carefully and recommend changes whenever they are indicated. We sincerely believe, however, that the six-inch size limit may mark another important step in an improved management program for our brook trout fishery.

—W. MASON LAWRENCE,
Chief, Bureau of Fish

THE BACK OF THE BOOK

Scattershots

And Department Activities

Case history

On February 15, 1954, James L. Mills, Jr., R. D. #1, Hamden, Delaware County, was arraigned before County Judge Walter Terry of the County of Delaware, and charged with a violation of Section 170 of the Conservation Law, in that on January 19, 1954, at about 4 P.M. he took a wild deer during the close season. Upon pleading guilty the defendant was fined $100 and sentenced to Attica Prison for one year. If at the expiration of his sentence the $100 fine is not paid, he will serve one day for each dollar.

On the same day, February 15, 1954, James L. Mills, Jr. was arraigned before Judge Terry and charged with taking a second deer during the close season. Defendant plead guilty, was fined $100 and sentenced to Attica Prison for one year. If at the expiration of sentence fine is not paid, defendant will satisfy it by serving one day for each dollar.

Sentences were made to run concurrently. In addition to fines and sentences, all license privileges of defendant have been withdrawn by the Department for five years.

The taking of a deer prior to the first day of the open season or after the last day of such season is an indictable misdemeanor. Punishment upon conviction: "Imprisonment for not more than one year, or by a fine of not less than $100 nor more than $500, or by both."

It shouldn't happen to a dog (It did, however)

We learn from the Associated Press that two hunters returning from a day's outing in the Catskills got involved in an automobile accident, and had to be taken in an ambulance to the local hospital.

Surviving the accident without injury were two beagles, which appear to have been asleep on the back seat and so cannot be presumed to have had any responsibility for the accident. Nevertheless, it was the beagles—not the hunters—that ended up in jail. Local police couldn't think of any place else to put them.

State Forests for hunting

Memo to W. M. Foss, Director of Lands and Forests: We conducted a very limited survey of the use of State Forests by hunters during the months of October, November and December, 1953, and the District Foresters submitted the following figures—which I in turn submit to you—just as a matter of interest. Next year we hope to obtain more accurate data on the subject, since the multiple use of our State Forests should be a matter of concern to all:

In District 1, there were 1,071 hunters who used the State Forests. In District 2, 9,700; District 3, 3,500; District 4, 1,145; District 5, 4,646; District 6, 24,000; District 7, 7,000; District 8, 1,468; District 9, 2,000; District 12, 4,700. Total number of hunters on State Forests: 59,230.

It appears that State Forests serve a number of useful purposes.—C. D. KINGSBURY, *Supt., State Forests*

In the wilds of New York

John Wilson, District Game Manager, for the Conservation Department in the Ontario-St. Lawrence area, and the sportsmen who hunt this section of the State are confident that no part of New York affords a greater abundance or variety of game. Wilson's confidence on that score was further strengthened this fall when he received the following letter from a Jefferson County resident:

Dear Sir: There is a mountain lion loose down here. I have seen him quite a few times. Mrs. Kirby here next to me saw it last Friday morning at 9 a.m. in the morning. I have been feeding it here now for over three weeks thinking someone would come down here and shoot it. Me, I have a .22 long rifle automatic. I have heard this would not kill it. They say I might cripple it so I have not shot at it. I also have a 3-shot 410 shotgun. One night here last week I almost got it into my woodshed. The door I had fixed up with a string slipped and it caught it in the middle. How it growled! It comes here most every night from 7 to 9 p. m.

This mountain lion weighs about 200 pounds. Its body is about six feet long with a long tail. On its shoulders it has a mane. On the end of its tail there is a tassell. Dark brown, its whole body. It sneaks along the ground.

Would you give me the right to trap this lion? Three different nights it has stayed under three cottages down here on Ramsye's shore. It isn't safe to go out nights here with this thing around. I have had several good looks at this thing. I'll be glad to help you fellows catch this animal in any way I can. If you think my .22 long rifle would kill it, I'll try to kill it. I would like your help to get this lion."

Paul E. Dorchester, Adams, N. Y.

In forwarding this communication to us, Wilson reported as follows: "I personally contacted Mr. Dorchester and some of the neighbors in the vicinity. Mrs. Kirby, mentioned in the letter, is reasonably sure it was a gray fox and the little sign that was present indicated that a fox had been denning up under one of the cottages.

"However, Mr. Dorchester has a hamburger ball tied on a string outside his door and he indicated he often lures the animal up to within shooting distance. When I visited with him he had three loaded guns at his cottage prepared for the creature upon its arrival."

Further developments are awaited.

Wild turkey survival

While lack of a constant snow cover has favored the survival of the wild turkeys liberated in the Southern Tier counties this winter, it has not simplified locating and counting them. Attempts during the week of February 15 to locate the turkeys in Cattaraugus County from the air had to be cancelled for lack of snow, but will be repeated later as, if, and when conditions are right. Exploration of portions of Allegany State Park at that time revealed three groups of turkeys, totalling 28 birds, all within a mile of one liberation point, and all gratifyingly wild. Two other groups of twenty or more turkeys have been seen within the Park area, and reports of smaller flocks are being followed up in other parts of Cattaraugus County.

In the Catskills, however, survival of immature birds liberated in Sullivan County in August and in Delaware County in October has been most disappointing. Only five of the 157 nine-week-old birds liberated in Sullivan are known to have survived, while only eight of the 152 16-week-old birds liberated in Delaware County are still under observation. It is hoped, however, that more favorable circumstances will attend the further experimental liberations planned for the Catskill area so that the project there will not have to be discontinued.

Since over most of the State there was no crop of beechnuts or black cherries last fall, the turkeys have had to shift to other foods, yielding one important observation. The lowly and often despised blue beech (*Carpinus caroliniana*) apparently seeded well, so that the turkeys have torn up the surface of the ground under thickets of these in search for food. While the blue beech has no value as a source of timber, it does have a place in providing buds, catkins and seeds for wildlife, and should be given due consideration. —RALPH H. SMITH, *Game Research Investigator*

Safety in the woods

"Safety programs for woods workers in the Adirondacks are not common. Employers hesitate to train a man who might be working for someone else tomorrow. Where safety programs are in effect, they are on a small scale. Some are both poorly designed and administered. Safety training has not yet entered the woods. An occasional poster is hung and accident reports are filed, but organized training is almost lacking. The accident rate bears mute testimony to the need for such a program. Canada and some Northern European countries have taken big steps in this direction and are finding the results gratifying. With the large amount of exploratory work carried on by others, it should be a simple matter to work out a satisfactory system for Adirondack logging."

From "Woods Labor in the Adirondacks," by Nelson T. Samson, 1952. Thesis on file at the State University College of Forestry, Syracuse, Department of Forest Management.

Muskrats, waterfowl, cattails

A controlled muskrat population is one of the most effective tools available to game managers in maintaining a proper balance between open water areas and cattail stands in marsh waterfowl habitat. The present muskrat trapping program on the Department's Oak Orchard Game Management Area in Western New York is designed to achieve that goal through reduction of the muskrat population.

On this marsh muskrats were allowed to increase for several years in order to reduce the heavy mass of cattail vegetation. The desired level of control was achieved in 1953, and it then became necessary to reduce the high level of 'rat population. Moreover, to avoid conflict with migrating ducks and geese using the area in the fall and spring, it was necessary to schedule trapping operations during the winter months—even though "ice trapping" is a difficult and inefficient method for harvesting muskrats.

Beginning on January 4, 1954, three regular State trappers were assigned to the project under direction of the District Game Manager. During January and February these men operated an average of 53 traps each, and their average catch was about 13 pelts per man-day. That made for a total of 1,636, of which 821 were males and 815 females. Pelts were stretched and dried in conventional manner and periodically shipped to the central office at Albany for storage and sale at the Conservation Department's annual spring fur auction.

Muskrat trapping at Oak Orchard was discontinued at the end of February with the advent of warm weather and the arrival at the marsh of the vanguard of waterfowl on their spring migration from southern wintering grounds.—ROBERT PERRY, *District Game Manager*

'53 fish salvage operations

Report of the 1953 fish salvage operations shows that last season was one of the most successful in the nine-year history of the program—a total of 796,063 pan and game fish was netted by the Department's salvage crews and restocked in

(*Continued on next page*)

Leave him alone

This fawn has not been "deserted." Its mother has not gone off and left it; although she may have gone off a few hundred yards, she will return to take care of her young as soon as you leave. Let Nature take of care of her own. Leaving young animals alone.

179 lakes and ponds open to public fishing in 37 counties of the State. The fish, weighing over 116 tons, had an estimated value of at least $55,000.

During the 1953 operations, 18,089 pounds of undesirable fish were destroyed. And another popular aspect of the program was the stocking of city park ponds in support of community-sponsored fishing derbies for kids. The salvage crews also did increasingly valuable work throughout the State in co-operation with the district fish management offices in fish population control projects.

Last year's salvage operation brought the total pan and game fish netted and restocked since 1945 to 1,372,554 pounds. More than three-quarters of a million pounds of coarse fish (such as carp and suckers) have been removed from the waters netted since the program began.

For the defense

On January 16th the case of Bruce Madlen vs. the Shirttail Archers of the Hudson Fish and Game Club was brought to trial. The charge was that of missing a deer during the archery season of 1953. Claiming that he had indeed hit a "buck" the defendant (Mr. Madlen) presented the evidence shown above.

The jury, in spite of the evidence and after lengthy deliberations, found Mr. Madlen guilty as charged, as well as five other defendants, and recommended that the offenders be sentenced. They were; each of the guilty must now wear the shirt which he wore the night of the trial whenever he participates in archery activities, and since each shirt is minus from 8 to 20 inches of shirttail, the wearers can easily be recognized as branded people.—H. W. TRIMM

The 1953 pheasant season

Contrary to some pre-season misgivings, the 1953 longer and later pheasant season seems to have been generally successful. "The best season in years" is the most common reaction of sportsmen as reported by District Game Managers attending club and Federation meetings this past winter. The Managers also report a good post-season carry over of birds into the winter in most sections of the pheasant range. Their observations of wintering flocks also indicate an improved hencock sex ratio. This was particularly encouraging since it marked a trend toward a more productive breeding ratio. Some adverse reports were received, however, concerning the unavoidable surprise opening of the season when the fire hazard ban on hunting was lifted at noon on what otherwise would have been the third day of the season. The different opening dates of the pheasant and rabbit seasons also resulted in some adverse criticism. Others complained of the unusually dry field conditions which they felt reduced their hunting success.

The later pheasant season in 1953 was intended as a means of reducing conflict with late fall farming activities (such as corn and apple harvesting) which are often under way until late October. The longer season was set principally for biological reasons in order to secure a larger harvest of surplus cocks. In addition, the longer season increased hunting opportunity; lessened the feeling of urgency to get into the field immediately and thereby reduced hunting pressure. It also permitted better bird dog work by avoiding earlier season high temperatures. All of these benefits appears to have been realized, at least to some degree. Peak hunting pressures which occur during short seasons, resulting in unfavorable farmer-sportsmen relationships, were sharply reduced as a result of the longer season, ex-

Reported Deer

Adirondack Region

	1950	1951	1952 37 days	1953		
					Archery Only	
	Antlered	Antlered	Antlered	Antlered	Antlered	Antlerless
Clinton	123	132	110	157	—	—
Essex	739	677	642	691	1	2
Franklin	1,024	1,081	1,295	1,223	2	1
Fulton	62	74	80	116	—	—
Hamilton	1,095	1,064	1,074	1,347	2	7
Herkimer (N. Zone)	518	482	519	626	2	1
Jefferson	43	33	65	50	—	—
Lewis	301	347	387	400	—	—
Oneida (N. Zone)	133	179	145	163	1	—
Oswego	104	104	126	181	1	—
St. Lawrence	1,251	1,406	1,472	1,626	3	3
Saratoga	111	114	92	121	—	—
Warren	285	315	199	299	—	1
Washington (N. Zone)	175	—	51	111	—	—
TOTAL	5,964	6,008	6,257*	7,111	12	15

(* Total includes 13 antlerless taken by archers)

Catskill Region

(1952—16 days; either sex—2 days)

	1950	1951	1952		1953		
						Archery Only	
	Antlered	Antlered	Antlered	Antlerless	Antlered	Antlered	Antlerless
Albany	139	175	265	259	203	2	1
Broome (split)	—	—	—	—	220	2	1
Chenango (split)	—	—	—	—	71	—	—
Columbia	301	425	407	—	586	—	2
Delaware	979**	1,173	1,569	1,039	1,282	2	5
Dutchess	448	484	497	5*	655	3	4
Greene	554	626	1,178	1,200	564	3	3
Herkimer (S. Zone)	—	—	26	—	43	—	1
Orange	404**	447	389	3*	521	2	3
Otsego	513	643	757	734	627	4	7
Putnam	162	208	243	1*	291	4	5
Rensselaer	171	161	141	—	203	1	—
Rockland	86**	103	119	1*	102	3	2
Schenectady	40	21	33	—	47	—	—
Schoharie	383	458	728	702	403	5	3
Sullivan	1,333	1,302	1,330	5*	1,720	7	23
Ulster	660	754	768	—	1,126	7	16
Washington (S. Zone)	—	223	105	1*	129	2	—
Westchester	17*	26*	24*	22*	—	48*	29*
TOTAL	6,190	7,229	8,579	3,972	8,793	95	105

(* By archers *only*)
(** Archery included in these county totals)

cept in areas close to centers of population.

The Department's list of 1,500 farmer observers, scattered throughout the best pheasant range of the State, will be canvassed in April to determine the relative abundance of overwintered birds going into the breeding season as compared to similar reports from these observers during the past ten years. These co-operators also will be canvassed in July to determine the relative success of the 1954 breeding season. This information, together with that secured from field observations by Department personnel and from sportsmen, will be used as a basis for setting the 1954 season to provide maximum hunting opportunity within the limit of the available crop of surplus birds.—ROBERT PERRY, *District Game Manager*

Credit where credit's due

In the February-March issue of THE CONSERVATIONIST we published an article by Irving B. Stafford, State Conservationist, Soil Conservation Service, outlining the new program for small watersheds to be undertaken this year on four flood-scarred streams in New York.

In illustration of this article we used two photographs of stream erosion control structures installed in Dean Creek, Tioga County and stated that the design and installation was the work of the S.C.S. We were half right. One of the structures pictured was an S.C.S. child; the other, we were later informed by Mr. Stafford, was designed and constructed by the New York State Highway Department. Another photo of highway work will appear in our next issue.

Take 1953

Central and Western

(1952—6 days; either sex—2 days)

	1950		1951	1952		1953		
							Archery only	
	Antlered	Antlerless	Antlered	Antlered	Antlerless	Antlered	Antlered	Antlerless
Allegany	920*	772	816	919	1,824	568	4	13
Broome (split)	453	296	489	400	704	199	2	1
Cattaraugus	807*	511	1,109	1,086	1,779	679	22	26
Cayuga	199	195	130	177	214	95	1	—
Chautauqua	550*	306	813	792	1,428	548	10	7
Chemung	385	393	329	275	487	233	2	—
Chenango (split)	641	458	681	658	1,166	494	5	5
Cortland	354*	176	342	355	592	251	—	—
Erie	221*	85	255	255	312	182	3	1
Genesee	132	94	125	122	216	102	3	—
Livingston	303	199	288	352	555	199	7	1
Madison	207	—	304	204	4*	278	4	5
Monroe	126	102	78	83	80	70	—	1
Niagara	31	23	48	36	49	47	—	—
Oneida (S. Zone)	—	—	—	23	1*	43	—	—
Onondaga	127	86	120	106	121	102	—	1
Ontario	254	155	268	320	591	221	3	3
Orleans	92	87	71	76	184	44	—	—
Schuyler	291	273	259	211	360	188	1	—
Seneca	59*	36	83	65	84	40	—	2
Steuben	902	710	882	882	1,559	789	9	6
Tioga	533	502	433	446	846	263	3	4
Tompkins	360*	352	338	311	482	226	5	6
Wayne	139	105	95	103	81	77	—	1
Wyoming	184	133	266	263	390	166	2	3
Yates	339*	318	186	212	431	152	4	—
TOTAL	8,609	6,367	8,808	8,732	14,540	6,256	90	86

(* Archery included in these county totals)

1950—63 Big Game take reports of Southern Tier unspecified—not included in above.

1953—31 Big Game take reports returned with incomplete information—not included in above.

1953—7 Archery take reports with incomplete information—not included in above.

	1950	1951	1952	1953
GRAND TOTAL	27,130	22,045	42,080	22,563

1950		1951	1952		1953	
Antlered	Antlerless	Antlered	Antlered	Antlerless	Antlered	Antlerless
20,763	6,367	22,045	23,568	18,512	22,357	206

Total (all regions 1950-1953)—113,818

Andy Gump buck

The photograph above was taken by Dr. Stegeman of the N. Y. S. College of Forestry, and was sent to us by Art. Flick, Jr. It shows a buck killed last fall, near Westkill in the Catskills, by Art. Flick, Sr., who we understand was quite disconcerted when he discovered what he had shot.

As indicated in the photograph, the lower jaw is at least two inches short of normal, although in other respects the deer appeared to be typical. As yet, we have not heard of any explanation for the abnormality in jaw formation but if and when we do, we'll keep you posted.

Pupils and pest control

There will be approximately 15,000,000 fewer tent caterpillars in northern New York (see "Tent Caterpillars on the Rampage," Aug.-Sept., 1953) as the result of a contest held in School District 4, Bacon Road, North Bangor, Franklin County.

This contest, which closed December 1st, disclosed that Asher Allen gathered 27,757 egg masses to win a first prize of $15; Jerry Armstrong found 27,628 egg masses to win $10 for second prize; Joseph Jock found 11,345 for third award of $7.50; Audrey Todd, 2,673 for fourth award of $5 and Larry LaValley, 1,925 egg masses for fifth prize of $2.50. Altogether the pupils collected 74,579 egg masses since school reopened in September, representing a tremendous assist in the control and eradication of these pests.

It is estimated that the winner destroyed 5,551,400 caterpillars and the entire group, 14,915,800. Prize money was donated by Mrs. Floyd Tarbell and Mrs. Frank Aldrich, who had recommended the contest plan as a good method of ridding the area of the tent caterpillars which have done so much damage in past years.

We agree it was a good plan. And we're happy to learn that Mrs. Blanche White, District 4 teacher who directed the contest, and her pupils are continuing their program of caterpillar control.

Tent caterpillars for 1954

In mid-summer of 1953, following a State-wide aerial survey that showed that about 7½ million acres of our forest area had suffered damage through defoliation by the forest tent caterpillar, a tent caterpillar egg mass survey was made throughout the infested section to ascertain probable conditions for 1954.

The forest tent caterpillar egg mass contains from 100 to 350 eggs entirely encircling a twig, and the eggs are cemented together. The mass is ring-like in shape, square at each end, and is coated with a dark colored varnish-like substance. By determining the number of these egg masses present on 250 branch samples in a limited area, it has been shown that it is possible to predict the approximate amount of defoliation that normally will occur the next season. On making the egg mass survey last summer, such sampling points were taken at 10-mile intervals along all roads traversing the general area of infestation.

The results of this survey indicate that in all probability there will be another outbreak of the forest tent caterpillar in 1954 covering at least the same area defoliated in 1953. However, this prediction is based entirely on the egg masses now present. While even 30-below-zero weather is recognized by scientists as having no detrimental effect on the eggs, other factors—such as egg parasitism, or a late spring freeze-up following hatching—could have a very great effect on the number of caterpillars that survive to cause damage. Furthermore, outbreaks of this insect pest seldom continue in the same area for longer than three to five years, and if such a cycle applies to this particular infestation, we should expect a normal retardation in the intensity of attack by '54 or '55.

Our tentative plan calls for the treatment of about 5,000 acres of State-owned lands. These lands are "special use" or recreational areas, or are reforestation areas where the values concerned justify the expense of treatment. The 5,000 acres is composed of relatively small blocks of woodland, well distributed through the infested area.

There is also the possibility that we may spray the sugar bushes in Clinton County that were scheduled for treatment in 1953 but were not sprayed because of the lateness of the season. Word has not yet been received from the Clinton County supervisors as to their decision to co-operate in this project.

Owners of property in the infested area where the expenditure for spraying can be justified should plan now for any such control action. Spray is most effective when applied soon after a general egg hatch, which often occurs in New York State about May 1. The technical advice of the Bureau of Forest Pest Control is available to such individuals at no cost. —C. J. Yops, *Superintendent, Bureau of Forest Pest Control*

Keep New York Green

This spring a vigorous Keep New York Green campaign to impell citizens of the State to take proper forest fire precautions will be undertaken by the Empire State Forest Products Association, a group vitally concerned with the conservation of forest resources.

The Keep Green movement, already tried and tested in other major forested areas of the Nation, will work through schools, local newspapers, radio stations, women's clubs, sportsmen's organizations and farmers, showing how fire losses are translated into dollars and cents terms that affect wages, profits, taxes and all around better living. The campaign also aims to show citizens not only how they can prevent fires by being careful in and near the woods, but also how they profit when forest fires are prevented or quickly controlled.

To carry out this work in New York, the Association has set up a five-man State-wide executive Keep Green committee, headed by F. B. Willson of the International Paper Company, Glens Falls. Working under the overall direction of this committee will be local committees coinciding with the State's forest districts. Representatives of all groups concerned with forest conservation will be asked to serve on district committees to give the campaign the broad base of support necessary to success.

Sportmen's co-operation will be particularly sought because, like forest dependent industries, they are especially concerned with forest fire prevention. With the wasting of timberland by fire, cover and food for wildlife is destroyed, game birds and animals perish and ashes left after fires sometimes pollute streams so that fish are killed outright. Often the loss of forest cover allows the rapid run-off of water and consequent erosion and may cause streams and lakes to dry up, fill with silt, or become stagnant.

Sportsmen and forest industries are not the only ones who lose from forest fires; literally everybody loses. Forest fire protection costs New York taxpayers over a million dollars a year; expenditures by forest industries and landowners for prevention and suppression of woods fires add substantially to this cost. Reducing the number of fires always reduces suppression costs. Also, when forest values are destroyed by fire, State and local governments lose tax revenue needed to support schools and other necessary public services.

The Keep Green movement has demonstrated in other states that annual fire losses can be cut. In Oregon, for example, the movement resulted in a 29 per cent reduction in man-caused fires in 1952. New York will be able to profit from the experience. While New York has a comparatively good record of fire prevention and one of the best fire-fighting organizations, driving home the importance to New York citizens of crushing out their cigarets, drowning campfires and being generally careful with fire in the woods can prevent fires and help Keep New York Green.—Harold Ellis, *American Forest Products Industries*

Forest fire report

The report of the Bureau of Forest Fire Control for the year reveals some unusual facts about the fire seasons. For instance, for the 12-month period ending October 31 the woods were closed to the public twice by Governor's proclamation. The interval between closures—barely eleven months—is the shortest on record.

The 1,718 fires during the period burned a total area of 15,790 acres. While showing an increase in fire occurrence of 13 per cent over the annual average for the five preceding years, figures showed a 10 per cent decrease in total area burned for the same period. The fires averaged 9.2 acres—about the lowest average since 1936.

Twelve thousand seven hundred fifty-one acres of forest burned, representing only .096 per cent of the total (13,425,000 acres) forest area protected. The spring fire season came early; there was no large accumulation of snow on the ground, and 235 fires were reported before April 1. However, from April 1 until late May,

heavy rainfall was frequent throughout the State, with the result that the spring fire season as a whole was one of the lightest on record.

During the remainder of the year, conditions were reversed—with New York experiencing one of the driest periods on record from June 1 until late fall. The number of fires during June, July and August exceeded the number of spring fires—another unusual occurrence. While the great fire hazard created in the Adirondack forests (and to a lesser degree in the Catskills and other sections of the State) by the wind storm of November, 1950 was still a bugaboo, there were but 15 fires in the Adirondack blow-down. Eight were entirely on the Forest Preserve; five wholly on privately-owned land and two burned on both private and State-owned land.

As in past years, smokers continued to cause the most fires; sportsmen the next greatest number, then the burning of brush, refuse, etc. Lightning accounted for more than the usual number, 95 being attributed to bolts or "dry lightning storms," as the Bureau terms them. Probably the lowest incidence of locomotive-caused fires on record was noted—less than 3 per cent—due no doubt to the increasing use each year of diesel locomotives.

The gradual decrease in the number of fires reported annually is ascribed in no small part to the intensive fire prevention campaign conducted by the Department in co-operation with the U. S. Forest Service since 1942, and to the use of all available channels of publicity such as speaking, radio and television programs, news releases and articles. The Bureau of Forest Fire Control adds that not only the statistics, but also the observations and comments of its field personnel, indicate that fire occurrence today is lower than a dozen years ago under comparable weather conditions, and that it appears that definite progress is being made in fire prevention.

Six thousand cords of softwood taken from an area 90 per cent blow-down (shown in background) by Gould Paper Co. in Moose River area.

Salvage report (16)

The volume of blow-down timber removed during the fiscal year 1953-54 is far below that harvested in the previous years. The income from all sales from April, 1953 through January, 1954 totaled $156,854.38 and the outlook for the coming year is far from optimistic—although we have received reports to the effect that a number of operators are planning to resume work this spring. Nevertheless, field reports continue to suggest that a considerable amount of the blow-down material has been affected by decay, especially balsam fir, hardwoods and white pine.

The severe decline in demand for pulpwood during the past two years has resulted in the serious curtailment of lumbering operations within the blow-down areas. To date, salvage operations have been completed on 52,305 acres. Unless conditions greatly improve during the coming year, a considerable acreage of blow-down will still remain untouched by 1955. However, the work performed to date has greatly improved conditions in many localities in the Adirondacks and has enabled the Department to better cope with the unprecedented fire hazard. There are certain sections, however, such as the Cold River area, where the blow-down will be with us for another decade or so. Therefore, we must be prepared to live with this condition for some time to come.

From the financial viewpoint, it appears that our original estimated income from salvage operations will be reached by 1955. Actual receipts to date amount to $1,156,525.49, plus the value of material salvaged and used by the Department. The latter is valued at $163,294, making a grand total figure of $1,319,819.49.

Since the start of the program in November, 1950, contractors have removed 234,804 cords of pulpwood having a value of $762,314.35, and 44,861,852 board feet of sawlogs with a value of $294,543.23. Receipts from local sales from areas too small for advertising amount to $99,667.90. The difference between the total estimated receipts and the actual cash income, not including the total of State salvaged material, is $170,169.86.

The coming year will unquestionably mark the end of the majority of salvage operations on Forest Preserve lands. This means that the Department will be faced with the problem of providing additional protection to many of the blow-down areas until such time as Nature intervenes to make them less inflammable. Furthermore, it may be necessary for the State to undertake additional fire hazard reduction work on some of these areas before they can be opened to the public.—Wm. M. Foss, *Director, Lands and Forests*

The following table shows the status of blow-down operations as of February 1, 1954:

Units	Contracts Executed	Contracts Unsold	Total
No. of Projects	162	27	189
Acreage	110,778	68,365	179,143
Cords	246,171	236,435	481,906
MBF	34,890.5	8,735	43,625.5
Est. Receipts	$1,064,055.35	$262,640	$1,326,695.35

SUMMARY OF OPERATIONS

No. of contracts started, including those completed	156
No. of contracts not started	6
No. of contracts completed	80
No. of contracts incomplete, including cancellations	89
No. of contracts cancelled	4
No. of contracts terminated	7
No. of contracts active in January	27
Acreage reported complete	52,305
No. of projects sold this fiscal year	27
Income from all sales this fiscal year	$156,854.38

Fisher and otter take, fall and winter 1953-54

A fisher season was declared between the dates of October 25, 1953 and January 1, 1954, with a season bag limit of three animals per trapper. An otter season was declared between the dates October 25 (northern zone), November 5 (southern zone) and January 31, 1954, with no season bag limit imposed.

The fisher season was the fifth since 1949, the first year since 1936 in which on open season was declared. With high fur prices during the 1930's and widespread unemployment, the fisher had been trapped so hard that it became a rare species in the State, but the period of complete protection accorded this furbearer and the relatively light trapping pressure since the reopening of seasons has permitted an increase in numbers up to the point that it has extended its range and at present is not endangered by trapping.

For some years the otter has been available for harvest through Department orders permitting trapping in a fall and winter season, and again in a spring season. In spite of this, reports giving totals of otter tagged by the Game Protectors continue to indicate a conservative take of this wily animal.

The tabulation which follows gives the season results for otter and fisher:

	FISHER		OTTER	
County	Pelts	Trappers	Pelts	Trappers
Albany*	—	—	—	—
Clinton	—	—	—	—
Columbia*	—	—	—	—
Essex	4	2	11	5
Franklin	30	19*	16	8
Fulton*	—	—	2	2
Hamilton	33	19	24	17
Herkimer	30	19	12	8
Jefferson*	—	—	—	—
Lewis	30	16	10	8
Oneida*	—	—	—	—
Oswego*	—	—	3	2
Rensselaer*	—	—	—	—
St. Lawrence	37	24	6	6
Saratoga*	—	—	2	1
Warren	8	7	7	5
Washington*	—	—	—	—
Total	172	106	93	62

* County open to otter trapping but not to fisher trapping.

Fly-Fishing-Only

This is the third successive year in which areas for fly-fishing-only will be in operation on short stretches of four well-known, State-owned public fishing rights streams—Willowemoc, Kinderhook, Bouquet and East Branch Ausable—all primarily brown trout waters.

Creel census and electric shocker population studies, which were carried out the first two years to check on the results of this experiment, will be continued. The information obtained thus far shows that the fly-fishing-only areas have not been as heavily fished as comparable unrestricted areas. As would be expected, the data indicate also that the number of trout caught per hour has been less on the areas restricted to fly fishing than on unrestricted areas where all types of lures are used. Nevertheless, population studies have not, as yet, shown any measurable build-up of trout populations in the fly-fishing-only areas.

The fly-fishing-only program is an experiment designed to determine whether it is possible to provide higher quality fishing through regulation of the type of gear used. The information obtained from these studies together with the observations and experiences of the fishermen will be helpful in answering this question.

New York Fish and Game Journal

To provide a better means of presenting the results of studies on fish and game problems in New York, the Department is undertaking the publication of a technical journal. In a foreword to the first issue, Commissioner Duryea writes as follows:

"New York State is proud of the valuable studies which its technical staff has made, and is making, in relation to major problems of fish and wildlife conservation. For some time there has been a growing need for making the results of these technical studies more fully and readily available to all those who can put them to practical and effective use. It is felt that this can best be met through a periodical issued at regular intervals and covering both fish and game topics in each issue. Such a periodical will have a stamp of permanence not possessed by 'occasional papers' and will also have decided advantages with respect to filing, especially by libraries. *The New York Fish and Game Journal* has accordingly been designed with these considerations in mind. I am confident that it constitutes an important step in promoting an effective fish and wildlife conservation program in this State."

At present it is planned to publish two issues a year. The first (January, 1954) is now available. Among the papers included are: "Lake Ontario-St. Lawrence River Smallmouth Bass," by U. B. Stone *et al.*; "Lethal Oxygen Concentrations for Trout and Smallmouth Bass," by G. E. Burdick *et al.*; "A Study of Criteria for Estimating the Age of Beavers," by A. H. Cook and E. R. Maunton; and "Wariness as an Influence on Age Composition of White-tailed Deer Killed by Hunters," by H. F. Maguire and C. W. Severinghaus.

The Journal will be furnished without charge to State and Federal conservation agencies and scientific institutions. It will also be furnished free to selected libraries and conservation organizations in New York State. Others may subscribe at a rate of $1.50 per year or obtain individual issues for 75¢ per copy. Correspondence should be addressed to the Editor: Robert W. Darrow, New York Conservation Department, Albany 1.

Bird banding—miscellaneous

Occasionally, the Conservation Department's Game Research Investigators responsible for keeping tabs on banded waterfowl are asked to track down the case history of a banded bird of another family.

One such recent instance involved a banded pigeon found dead near Putnam Station in Washington County. This turned out to be one of several homing pigeons entered in a race from Rochester, N. Y. to the Worcester area in Massachusetts. Mr. Edgar J. Orsenault of Leonminster, Mass., owner of the bird, reported that the pigeons were released October 17 at Rochester, N. Y. at 8 A.M.; the winning bird being clocked in near Worcester, Mass. at 2:15 P.M. This figures out to an average speed, for the 300 mile flight, of 48.4 M.P.H.

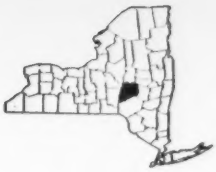
Next, let's examine the case of Fish and Wildlife Service band No. 526-27683. Reported to John Wilson, Ontario-St. Lawrence District Game Manager, the band was allegedly affixed to the leg of a Hungarian Partridge shot by a hunter in the vicinity of Benson Mines, southern St. Lawrence County. This puzzled Wilson because (1) the Conservation Department has not banded any Hungarian Partridge and (2) no sane "Huns" should be in the type of cover found in that section of the county. Part of the mystery was solved when a check with Fish and Wildlife Service records disclosed that the reported band was placed on a herring gull (sea gull) at Gull Island, Michigan in June, 1953.

Wilson, however, still has a couple of questions: (1) How can anyone shoot a sea gull believing it to be a Hungarian partridge? And (2) How does "Hungarian Gull" taste?

Ranger, not typist

One of the newest stories on the late Pat. Cunningham, renowned Forest Ranger of North Creek, concerns the time his superiors got fed up with trying to decipher his handwritten reports and sent him a typewriter.

Asked one day how he liked the new typewriter, Pat. had a ready answer: "Oh, fine. But it can't spell worth a darn."



County of Otsego

LETTERS

To The Editor

Rebuilding land and men

Dear Sir: Your editorial and the articles by Mr. Lyman and Mr. Foss under the caption "Rebuilding Land and Men" all strike a responsive cord. Would it be possible to get a few copies that I can distribute to Commissioners Mulrooney, Osborne and Judge Proskauer, and a few others, former key members of the Commission's staff? While this subject does not fall within the purview of this Commission's activities, and its affairs are now being rapidly wound up, I know they will all be interested and may sometime contribute constructively to the idea.

Ben. A. Matthews, Chief Counsel,
New York State Crime Commission

Gentlemen: Believe you have something in your ideas on rebuilding land and men. Let's hear more about it, and how can the individual citizen help.

C. M. Crannell, Glens Falls

Dear Sir: As a member of the staff of the Prison Camp No. 1, Mass. I was interested in your February-March issue. I would appreciate it if you would mail me four issues; enclosing one dollar. The article written by Mr. Lyman, Commissioner of Natural Resources, was so complete that I wanted a personal record. Your picture was the best one of the main building that I have seen. The editorial attitude is so understanding that perhaps only a Correction or Conservation Officer could appreciate it fully. I can assure you, that from a Correctional viewpoint it is a tremendous satisfaction to be working in such a program and to feel that each man leaving here for a new life goes with the clean mind and good physical health and sense of accomplishment that comes with working and conserving the things that God and Nature provided us here in Massachusetts.

Joseph E. Wihfler,
South Carver, Mass.

Sir: Congratulations on your forward looking article in the current issue of THE CONSERVATIONIST.

I am hoping that you will receive an overwhelming ovation from all clergy. And I am also hoping that the general public will understand the wisdom of your proposal for New York State.

You may count on me to do all I am able to help my community in supporting whatever decision the Conservation Department and the Penal Department work out jointly for the establishment of prison camps in our State Forests.

Your article, together with Lyman's, is like a breath of fresh woods air blowing away the cobwebs of hopelessness in rebuilding Land and Men. May God bless your efforts in this field.

Rev. Harold James Wright, Central Square,
Oswego County

Gentlemen: I have read with a great deal of interest your leading article in the Feb.-March, 1954 issue of THE CONSERVATIONIST: "Rebuilding Land and Men." Commissioner Lyman mentions the Michigan Camp Program in favorable terms and we were indeed pleased to see this reference.

We would like to: Obtain a copy of this issue, and obtain permission to reprint this article in our newspaper, *The Camp Fire*, in a subsequent issue, a few back copies of which we are enclosing.

S. J. Gilman, Director,
Corrections Camp Program,
Jackson, Mich.

• Michigan now has nine such camps, housing a total of about 800 inmates. According to the information forwarded by Mr. Gilman, the program has been an unqualified success in that state and has been in operation since 1947.

We hope to have something more to say in our next issue concerning the possibility of a similar program in New York. To date, we have not had a single unfavorable letter. —Editor

Pickerel for stocking?

Dear Sirs: I have a large beaver dam near by and I believe that it could be a great place for pickerel. It covers from 15 to 20 acres, and runs from about six feet in places to shallow flats. It has plenty of bogs and old ditches. It is alive with shiners and suckers for food. I would like to know where and how I could get some pickerel for stocking, and would appreciate it very much if you could give me a lead.

Also might mention that woodducks did great on it last year. During September and early October I was able to count as many as 50 woodduck in traveling up one side. They were very tame at that time and I would estimate there were from 65 to 75 birds raised there. There also were some black ducks and mallards—all in all, a nice crop for one season.

Ken. Lawyer, Climax

• You are probably aware that fish hatcheries, at least in this part of the country, do not handle pickerel stock. This species is widely distributed and generally self-maintaining where established, so stocking is not often necessary.

Our salvage crews occasionally obtain pickerel for distribution, however, and if your pond is suitable for this species and is open to public fishing, chances are good that stock could be provided from that source. Another possibility is to purchase stock from commercial fyke netters or carp seiners in the Hudson River. Names of these fishermen could be provided upon request. You would need a stocking permit from this Department before planting pickerel from this latter source.

Before furnishing fish for this pond or issuing a stocking permit, we would need to know the exact location of the pond, in case field investigation seems advisable and so that we can check on possibility of harm to connected waters. If you will mark the location of this pond on the enclosed map, we shall be glad to assist you in any way we can.— C. W. Greene, Senior Aquatic Biologist

Fawns for archers

Dear Editor: As chairman of the Utica Izaak Walton League Archery Club, I have taken it upon myself to question our archers in regards to having "fawns" listed on the special archery license issued last fall, 1953. I find that not a single one was in favor of having the word fawn on his or her license. Each and every one was most strongly against the taking of fawns.

As a result of that word the archers up this way are standing in a bad light with our northern neighbors—and understandingly so, as those people up north must think that the archers of N. Y. State applied to have that word "fawn" put on the license. I am sure they do not have the picture in the right perspective. If they did they would certainly know that no self respecting archer would shoot a "fawn."

We archers of the Izaak Walton League of Utica strongly urge you to strike that word "fawn" from any special archery licenses that might be issued in the fall of 1954. I am sure it will do a lot of good in setting us right with the folks up north, whom we hope to have as good neighbors now and in the future.

I would also like to know by what means a fawn can be identified. How do you differentiate between a fawn and a young deer? How does the Conservation Dept. have this classified?

It is my wish and that of the Izaak Walton League Chapter No. 3 of Utica, that this letter be published in the near future so that we archers of Utica can be placed in the category of good sportsmen and sportswomen —which I am sure we are.

Gerald F. Nuber, Chairman, Chapter 3, Izaak Walton League Archers

• *The word "fawn" was placed on the stub of the license so that a check could be made of the age composition of the kill by archers.*

As to protecting fawns, the question which you yourself ask is the crux of the matter: "How do you differentiate between a fawn and a young deer?" We might add, between a fawn and a small but mature doe? As fawns generally have lost their spots by the time the hunting season comes along, the only way they can be positively identified is by examination of their teeth. Those who argue for legal protection of fawns should bear this in mind. Just how would they word the law? And then, how would they go about enforcing it?—Editor

In defense of dogs

Dear Editor: I would like very much to present the other side of Mr. Wheaton's views (page 39, Dec.-Jan.) on dogs running deer. Contrary to his convictions, the owners of good hunting dogs do not want them to run deer and will do anything within reason to discourage the practice.

As owner and trainer of beagles which are hunted and also run in field trials, and from speaking with fellow enthusiasts of beagling, most beagles will run deer. Many methods are argued as to the best way to break a dog of this habit—such as keeping puppies with a goat, as the scent is somewhat the same; or pouring deer musk around a dog's neck to sicken him of the scent; or leading him to a fresh deer trail and whipping him if he wants to run it. Believe me, dog owners are trying to stop their dogs from running deer.

It is not at all unusual for an owner to run after his hound until on the verge of a heart attack, just to try to catch him before he becomes lost after he stops running the deer. Most dogs will stop after a few hours, but by then they are hopelessly lost if they have been hunted in strange country.

Just because you are not interested in rabbit hunting or in finding out more about the other man's sport, don't jump to conclusions. Many a grown man has actually cried over his lost dog. So instead of shooting his dog, please catch it and return it to him. Most beagles wear a collar with the owner's name and address on it. A beagle runs game for the fun of running it; they are not killers by nature.

If you still feel you must shoot the dog, if it is wearing a collar, at least mail the collar back to the owner and let him know the dog is dead. You need not sign your name, but at least the owner will not be hoping that he will someday find his dog. He won't have to worry either, if it has a place to sleep or something to eat.

Muriel Danahy, Mineola

Clint. West

Dear Editor: It was a pleasure to see in the new issue of THE CONSERVATIONIST the photograph of Clint. West and read your appreciative comments of him. He and his brothers and sisters were all well known to me, for we boarded across the way from their home from 1898-1904. He was a great fisherman as a young man, and started off afoot to fish the Boreas from the Balfour crossing to the Baker bridge on many a day. No cars in those times to give you a lift for the long miles to and from the river. I often met him up in the pastures when bird hunting; he had an old shot-gun, muzzle-loader with percussion caps.

I can still see Clint. riding in the old high Cadillac of Uncle Walter to which he fell heir. But I must stop reminiscing. The photo of old Orson Morse brings back other memories of long ago.

Emil G. Kraeling, New Canaan, Conn.

Dear Editor: I thought it might be of interest to you to know that the late Orson P. Morse, Surveyor, was Dad's Great Uncle. Morse was uncle to my Grandfather West, and great uncle to Dad. We noticed the picture of Orson P. Morse in the last CONSERVATIONIST.

Lawrence West, Ranger, Olmstedville

Woodcock

Dear Sir: I read your article about the banding of woodcock to determine how far they migrate, and thought that the following information would interest you: On February 13, 1954, while fox hunting up in the Wurtsboro Hills, I saw a woodcock, and on February 20, 1954 in the same area I saw two woodcock. The birds seemed in good health and flew about one hundred yards and settled again.

L. G. McLaughlin, Brooklyn

Albino mink

Dear Editor: The readers of your magazine might be interested to hear that I got a pure wild albino mink along Onondaga Creek near my home in Cardiff, New York, last December. These specimens are very rare, and this one was sent to the New York State Museum in Albany for scientific study and exhibition.

Wayne D. Turner, LaFayette

Black walnut

Dear Sir: I am interested in obtaining small Black Walnut trees for planting to make a walnut grove to replace a very old apple orchard on our 60-acre place here. The old settlers tell us there used to be some beautiful black walnut trees here, but the saw mills cut them all. Please send me any information which will be of assistance.

John R. Mason, East Otto

• *We do not furnish seedlings of black walnut, or for that matter, any other hardwood, because we have found through experience that hardwood trees or shrubs will not thrive when planted on old fields, where most of our reforesting is done. Black walnut, in particular, needs very high quality soil which is not present on most of the uplands where abandonment of farm lands and consequent need for reforestation, develops.—E. W. Littlefield*

Two in one

Dear Editor: You no doubt have read some of Ripley's "Believe It Or Not" stuff. But I think this will be interesting to you: While trapping near my home in Altamont I caught two muskrats in the same trap at the same time, both by the front foot.

Gerald G. Scanlan, Guilderland

Possum

Dear Editor: On January 24, Leo Walrath, a friend of mine, was hunting for cottontails about a mile south of St. Johnsville when he spotted this opossum in a tree. He drove back home and asked me if I had ever seen one. I never had, and personally thought it very unusual to find one in our neck of the woods.

I took a photograph of it, which I am inclosing, and would like to know the game law concerning this type of animal in New York State.

C. J. Polidori, St. Johnsville

• *Not protected. And they seem to be extending their New York range quite fast. —Editor*

Food for trout

Dear Editor: I am a member of the fish committee of a local club (in the Onondaga County Federation) and am fairly up to date on the trout stocking program, which no one could find fault with. But circumstances necessitate the liberation of a large quantity of four-inch trout in various streams of Onondaga County in late fall. As you know (and the Federation knows) the winter kill on these fish is tremendous.

I was wondering if some sort of a feeding program, conducted by an individual or a small group willing to foot the bills for the betterment of their streams, couldn't be set up. Something on the same basis as hatchery feeding, perhaps not quite so extensive but large enough to winter at least a greater part of these fish. Information could be obtained at a local hatchery, etc. Feeding would terminate in early March, thus not interfering with the opening of the season.

I don't know if this would be worth while, and would very much like to be advised.

Merrill Osborne, Syracuse

• *First, I should like to comment briefly on the general value of fingerling stocking in streams. While numerous investigations have demonstrated that losses from such stocking are usually heavy, often prohibitively so, when stocking is carried out according to usual procedures there is a brighter side of the picture. In a few streams, investigations have demonstrated good survival and growth from fingerlings. Further, since seven-inch yearlings go about 7.5 to the pound and four-inch fingerlings about 38, on a comparative cost basis fingerlings can stand an 80 per cent mortality up to seven inches and still give better value than spring-stocked yearlings.*

On the question of whether stream feeding fall and winter is feasible and likely to be of significant benefit there is no authoritative evidence available. General considerations having both favorable and unfavorable implications can be cited. Without much doubt, success would vary considerably from stream to stream. One thing that can be stated positively is that such a venture would be experimental in nature at least to the extent that results would not be predictable.

One favorable point is that although plenty of natural food might be present (as I believe it is in most streams stocked) the stocked fingerlings may be unable to secure it and might benefit considerably from a "tapering off" treatment which feeding by familiar methods would provide.

On the other hand, feeding under hatchery conditions is much easier and more efficient than it would be under stream conditions, especially in winter. In hatcheries, the fish are concentrated compared with the thinly distributed condition after stocking. Further, during much of the winter the water in most streams is so cold that trout eat little and infrequently, so that much of the food might be carried out of the stream before the trout could consume it. The spring water of hatcheries stays much warmer, of course. Perhaps a feeding period confined to about two months immediately following fall stocking would be a productive compromise.

I am inclined to think that the practical difficulty of getting the food to the fish on a sufficient mileage of stream would severely limit the feasibility of such a project, even if it were demonstrated to be potentially beneficial to the fish. But strictly from the trout's point of view, the idea seems promising, and we are of the opinion that food pellets (such as prepared by G.L.F.) would be the handiest, most effective form of food to use for this purpose. This type of food is being increasingly used by hatcheries. For fall fingerlings, the size 3/32 x 3/16 inches should be used.—C. W. Greene

Opening hour

Dear Sir: Why do we now begin deer hunting at 9 instead of the usual 7? Not that I give a toot, but it seems to me you have finally succeeded in removing the element of skill from big game hunting in the Southern Tier. This morning as my father and I climbed from the car and pulled on our coats (time 8:45) sounds of shotguns echoed from the woods. The farmer told us it had been going on since 7.

It seems to me the only ones who are penalized by such a stupid law are those who try to obey it. The others get the prime hunting. You know as well as I do there aren't enough game wardens to enforce it.

Why?

H. Wayne Davis, Salamanca

• *This opening hour was established as the result of a request from the Joint Wildlife Committee, representing the farmers of your section. It was the opinion of this committee that such an opening hour would give farmers a chance to get their cattle in from the fields before the shooting began. —Editor*

The buck law

Gentlemen: I am sending a clipping from a Maine newspaper sent to me by a friend who hunts deer there. Please note that even though both bucks and does are taken, the state doesn't feel the herd is depleted. I feel N. Y. State ought to do as many of the other states are doing, especially when I see so many does and nary a buck!

Robert A. Corbitt, Rochester

• *Last fall, the take in Maine was the third highest in history.—Editor*

About eagles

Editor: Last Saturday I was out on Croton Point on the Hudson and noticed nine ducks swimming close to shore. They seemed very tame and I was able to walk up on them. Then I saw that their wings had been clipped so they could not fly. One of the nine was a blue-wing teal. Right now (Jan. 25) the river here is loaded with ice which kept the ducks from getting feed. I went and got a couple of loaves of bread and I never saw such hungry birds.

Sunday I went back, and just before I reached the end of the point I saw three big birds sitting in a pine tree right on the end of the hill. I believe these birds were eagles. On the limb they stood about 16 to 20 inches tall. They have a dark head, I think, black or very dark brown. The top of the tail is black, while the rest of the body was brown similar to a black duck. When they flew the underside of the tail was white and I noticed that the tip of each wing was turned up. They have very big claws like an osprey. They also have the curved beak of a hawk. When they fly, from a distance it is hard to tell the front from the back; in other words the tail seems as long as the head.

After they went across the river towards the Palisades I noticed that one of the ducks was missing, and they were no longer tame because when they saw me they started out on the ice and wouldn't come in for the food. I think one of the eagles caught the missing duck.

A few months ago, on television, a man said that there were no more eagles in Westchester County. I don't believe it.

Bob Whalen, Ossining

• *We don't believe it either; riding the New York Central from Albany to New York on March 16, we saw five bald eagles between Harmon and the City. And we were supposed to be working, not watching for eagles.—Editor*

Horseshoe crabs a la Irish

Dear Sir: I have read the articles on the horseshoe crab (or horsefeet, as we have called them) in the late issues, and believe it or not it makes my mouth water to think of the delicious eating that Mrs. Alma Hoey of Brooklyn has been missing. I would like to prevent her from any further deprivation.

For quite a span of my life I lived in Fairfield and Norwalk, Connecticut and always looked forward to the May spawning run of the horsefeet. Mrs. Hoey's husband may have been getting the buck crab, which is small and has very little meat. He is like the blue claw; you starve to death picking out the meat. But oh boy! that female! She just can't be beat for eating. I have seen them fifteen to eighteen inches and larger across the dome.

I am afraid I have to disagree with Dr. DeKay as far as the careful separation of the meat is concerned. I take it that according to Dr. DeKay it has to be separated before the meat is cooked. This is an unnecessary and tedious operation. My friends and I have cooked and eaten these creatures by the hundred, and to cook them is a very simple chore:

Just get yourself a good big wash tub or pot large enough to hold the amount you think you can consume. Bring the water to the boiling point and put the horseshoes in to cook for about 30 to 40 minutes. The way we always tested them is to grab hold of the biggest claw and give it a pull, then taste the meat that is attached to it. When they have cooked to your satisfaction, take out of water and let cool. Then get out any implement that you can use to cut the heavy tissue on the under side of the shell, grasp claws and legs, pulling the body out of the shell. All of the white meat is delicious in hand; or it makes delicious salad or gumbo.

Now we come to the best part: If the female hasn't spawned the dome will be full of roe that surpasses shad, caviar, etc. I have eaten this roe by the pound and been such a glutton I broke out in the hives. They are very rich.

By now you are wondering what nationality I am. It seems I am Irish.

Bill Calhoun, Poughkeepsie

Dear Sir: Indeed, horseshoe crabmeat can be delicious. I was brought up at Cold Spring Harbor on the north shore of Long Island, where the natives collected them by rowboats full--to boil as chicken-feed.

My parents were biologists and of thrifty pioneer stock. The Department of Agriculture sent my mother a good many exotic vege--tables and fruits to try out for them, so our family was prepared to taste anything which promised to be wholesome. Mother and the wife of a neighbor, noting the zest with which the hens attacked boiled crab, decided to try it themselves. They found it delicious, and to the horror of the "natives", served it frequently.

I shared that horror. I loved helping collect the crabs, I enjoyed helping pick out dishpansful of boiled crabmeat; but the idea of swallowing any of it was unbearable. One day, however, I absentmindedly licked my sticky fingers. It *was* delicious! I remember the endless gambits by which (without admitting my reversal) I maneuvered myself into the company of gluttonous eaters of horseshoe crabmeat.

I am sorry that (after half a century) I no longer remember just what meat we picked, and what we rejected. But I *do* know that *our* crabs were boiled *first*. It is possible that my marine-biologist father had indicated some part which was to be snipped out in advance.

Since horseshoe crabs are plentiful (if one has them at all) and since I can swear that the meat is good, I would (if I were Mrs. Hoey) experiment with half a dozen. I'd boil two whole; split a couple, removing anything visceral-looking and boil them; and pick out raw and cook the solid "meat" of another pair. Not a bad way to spend a morning, and one would come out of the experience a world-authority on horseshoe crabmeat.

In fact, if Mrs. Hoey would like to drive up (1 hr.) with 6 horseshoe crabs, I have two stoves, lots of huge pots, a cleaver and an easily-aired house—I'd love to help her study this subject some day by appointment.

Millia Davenport Harkavy,
48 W. 11th St., N. Y. C.

It's love, that's all

Sir: About Mr. E. H. Woodruff's inquiry in regard to the partridge attracted by the noise of a tractor (Feb.-March, p. 36): This is a hen bird, and she is answering the hum of the exhaust of the tractor's *love call*. The chance is that she is the only bird in that neighborhood, and is called by the love sound of the male bird (the tractor hum).

I have seen the same antics in a photo taken by A. B. Brooks in W. Va.; when the tractor was running quietly the bird would come from a distant place and light on the tractor.

Charles A. Leuder, Jacksonville

What's in a name?

Dear Editor: In your current issue of February-March, you have a letter from Ed. Reid of Wanakena, New York, who wants to know the meaning of some names from the North Country.

He mentioned the good old Oswegatchie River, a noble stream with its headwaters in the heart of the Adirondacks. My father and some other old timers told me when I was a boy that Oswegatchie got its name in a most logical manner. It seems an Indian man hunting in the Natural Dam region (not far from Gouverneur) lost his horse. He finally discovered it swimming in a river. After much effort, he got hold of the horse's tail, so the tale goes, and pulled it ashore. Then he spoke to the horse thus: "Horse we gotchie."

James O. Parsons,
New York Herald Tribune

Albino squirrel

Dear Editor: Enclosed is a photograph of an albino squirrel killed last fall by Mr. Joseph P. Versch of Attica, while hunting gray squirrels in the Town of Warsaw, Wyoming County. Thought you might be able to use this in the magazine, to help complete your collection of photos of albinos.

Glenn Zwetsch, Game Protector, Attica

Itinerant 'possum

Conservationist: While fox hunting today in a State land area about two miles from the nearest habitation, I saw where an opossum had come out of a hard maple tree. The hollow in the maple was about 35 feet up. Having nothing better to do at the moment, I followed the track. He went generally in a circle, and if straightened out would have made about 1½ miles.

I don't know what the experts say or what are the true habits of the opossum, but this one followed the tracks of two different rabbits until he jumped them from some low spruces. It was snowing and there was no doubt about his jumping the rabbits or about the frightened manner in which they ran from their beds. I don't know whether or not the opossum is supposed to be a rabbit hunter, but I'm convinced that this one was doing just that. Also it is amazing to me how many of these animals are in comparatively remote areas. They ought to be "duck soup" for the red fox—that is, if there were any red foxes to speak of. I caught up with the opossum three times in thick spruces but couldn't get my eyes on him. He beat me back to the maple he had come out of.

Wm. I. Armlin, Jr., Middleburgh

Fair exchange

Dear Sir: This is to acknowledge with thanks the receipt of the publication requested. Very little work has been done in fisheries science here in our country, and the publications sent by you are of immense help to me in solving my problems.

I will be too happy to be of any service to you. Please do not hesitate to write for anything that you would desire to have from this side.

Shaikh A. Jaleel,
Marketing Officer,
Central Fisheries Dept.,
Nusserwanji Building,
Dundass Street,
Karachi-3 (Pakistan)

Cottontail disease

Gentlemen: I recently shot four cottontail rabbits in Genesee County, three of which had evidence of some sort of disease.

They had three or four bunches on their hind feet and back legs, some of which were as large as a dime. They were red in appearance and rather soft and appeared about to abscess. I did not examine their internal organs. I would like to know what disease they might have had (if you have any idea from the description). They appeared in good condition otherwise, and were lively and ran well against hounds.

R. Marra, Batavia

• *We referred this inquiry to our Bureau of Game, which reported that the situation you described appears to be a case of benign skin tumor or warts, presumably caused by a virus. Such conditions do not affect the edibility of the meat, and are not contagious to man. In some areas an increase in this affliction has been observed, but such an increase appears to be doing little harm to the general health of the rabbit population.—Editor*

Rattlesnake bite

Dear Editor: Several issues back, your magazine carried an article, or letter, which mentioned the fact that there was only one record of death from the bite of a rattlesnake. Ed. Wenzel died just that way.

The item reminded me of the fact that I had worked with Ed. Wenzel back in the 99th Street Shop of the IRT, and how he used to scare the Begeebers out of us by bringing in a filled bag or box of reptiles after each excursion into the woods. Ed. presented me with the enclosed picture and wrote the explanation on the back.

The snake Ed. is holding had bitten him, and if you look carefully you will note the bandage covering the wound in the little finger of his right hand. I don't remember exactly when we got the word that Ed. had been bitten and succumbed to the effects, but we were shocked by the news and missed him very much.

Art. Weiler, Bronx

Airborne deer

Gentlemen: On a recent hunt near my home on Eighteen Mile Creek in Erie County, we saw a doe of about one hundred fifty pounds run to the edge of a 70-foot chasm, clamber down as far as she could go—and then leap to the floor below. She landed in one foot of water with a limestone and slate bottom. The sudden stop knocked the wind out of her, but in a matter of moments she was up and on her way, apparently none the worse for her experience. Later I dropped a chalk line over at the spot and measured a 54-foot free fall.

Francis E. Griffin, Hamburg

Shrubs

Dear Sir: I'd appreciate your opinion as to what is the best illustrated book on shrubs of our northeastern states. A stamped envelope addressed to me is enclosed. Your articles in THE CONSERVATIONIST are a source of interest and pleasure and I hope to read much more from your experience in years to come.

James L. Rothwell, Victor

• *I believe the best book currently available on shrubs of the Northeastern States is "Illustrated Guide to Trees and Shrubs" by Arthur Harmount Graves, which was reviewed in the August-September 1953 issue of* THE CONSERVATIONIST. *This is published by the author at Wallingford, Conn., and sells for $4. In connection with the above, I talked with the office of the State Botanist here in Albany and they were of the same opinion. For some reason, books on shrubs are much more uncommon than books on trees. The best book ever published on shrubs of this region was "Our Northern Shrubs" by Harriet L. Keeler (publisher—Charles Scribner's Sons) and the last edition I know anything about was 1928. It is possible that this is still in print, though I am inclined to doubt it. It certainly would do no harm however to contact Scribner's or some of the second-hand book stores such as James C. Howgate, 128 So. Church St., Schenectady 1, N. Y., to see whether you might procure one. This has detailed descriptions of the native shrubs growing in the northern states, along with excellent photographic illustrations. It does not of course, contain the information on introduced species which are contained in the Graves manual.—E. W. Littlefield*

Migration of crows

Dear Sir: A question has been raised about the migration of crows in our biology class at school. Very often, during the spring of the year, I have watched crows winging their way along the south shore of Lake Ontario. This procedure takes place only when there is a brisk south wind, and the flights usually come to a halt about noon. Could you please tell me if our crows migrate north and south during the spring and fall? If they do, could you please enlighten me on how far they travel on their migratory routes? I'm sure it wouldn't extend much over two or three hundred miles.

Dwight Chamberlain, Rochester

• *According to the information we have, most New York crows don't travel much farther than that, and many not so far.—Editor*

Many thanks

Dear Sir: The Schenectady County Conservation Council in conjunction with the N. Y. State Council and the National Wildlife Federation, recently ran an essay contest in the local Junior High Schools on the subject, "Clean Waters Mean Better Living in America." Two cash prizes were awarded, the Council also voted to give the other (26) contestants a one year subscription to THE CONSERVATIONIST. The attached list covers these students; check is enclosed.

Robert L. Bierbaum, Scotia

Catching red salmon

Dear Sirs: In the five years or so that I have subscribed to THE CONSERVATIONIST I have rarely noted any suggestion as to mode of taking our many types of game fish. Undoubtedly such suggestions would raise a world of controversy and comment and perhaps it would be poor policy.

I do think an exception might be made in regard to new species. I refer particularly to the sockeye salmon which is being introduced in many of our lakes. I doubt that many of our fishermen are at all familiar with its characteristics.

I understand that unlike the landlocked, the sockeye has a small, rather delicate mouth and is usually taken only on small spinner and bait or spinner fly combinations, and that they are rather difficult to catch. Would you be kind enough to publish some information in regard to the above and confirm or correct my information.

Dr. C. D. Williams, Greenwich

• *You are right; it is contrary to our policy to publish information on how to catch more fish or kill more game, except in comparatively rare instances where an increased harvest of fish or game would mean sounder Conservation, wiser use.*

You are right again; lack of knowledge about the catching of sockeye or red salmon has resulted in the waste of this new resource, which could stand a lot more use. Your letter prompted us to ask Dr. Greeley to include some tips on catching red salmon in his article on page 8 of this issue.—Editor

Clearing house

Dear Editor: I have a suggestion to make. In the December-January issue the article on the Balmville tree was of interest because it had to do with this area. It mentioned the Goudy Wildlife Club, but without an address. I wrote Ben Stout to find the name of an officer and am now writing the president with the suggestion of exchange and co-operation between their society and ours.

The above is explanatory to my suggestion: That THE CONSERVATIONIST might offer to receive material preparatory to publishing a list of the Wildlife, Bird and Conservation societies of the State. The list should give full name of club, address of an officer, principal fields of interest, area covered.

I think this would be a very useful service to our "nature" clubs and might help to bring those with an interest into the fold of a local club that the individual did not know existed. Secondly, it might help bring co-operation between adjacent societies.

In the past I have started correspondence with nearby naturalists, thanks to letters in THE CONSERVATIONIST.

Daniel Smiley, Mohonk Lake

Survival

Dear Editor: Bill Wadsworth put a lot of time into "Survival" and we appreciate his hints. However, Bill got some of us out on a limb, and we still might get lost or freeze to death.

He says "Don't be like the fellow . . . who forgot which end of the needle pointed North . . ." Then Bill didn't even saw off the limb. Which point *is* North? We remember it like this: Gun Barrel's Blue, Compass Point Too.

Small sticks to start a fire—yes, but this squaw wood stuff. What's that? Maybe it's the curling, paper-thin sheddings of the birch and cherry woods. If so, it's the best stuff we've run into to get pretty good results with that first match.

Ross C. Bartlett, Cortland

Back issues

A complete list of the back issues of this magazine now available in our office is given below. These may be purchased for 25 cents each.

Apr.-May, June-July '49; June-July, Aug.-Sept., Oct.-Nov. '50; Feb.-Mar., Apr.-May, Aug.-Sept., Oct.-Nov. '51, Dec.-Jan. '51-'52; Feb.-Mar., Apr.-May, June-July, Aug.-Sept., Oct.-Nov. '52; Dec.-Jan. '52-'53; Feb.-Mar. '53 through Feb.-Mar. '54.

We are also giving a list of names and addresses of persons who have advised us that they have back copies for sale. Those who want such copies may write and deal directly with the owners. We cannot attempt to put a value on the magazines held by others; the law of supply and demand must govern there.

COMPLETE SETS (unless otherwise noted, addresses are in this State): *Sherwood F. Marvin*, Box 121, Stormville; *Wayne Russell*, 873 Elm Ave., River Edge, N. J.; *R. F. Stanton*, 386 Brainard, Watertown (also some duplicates); *Harry B. Camp*, Palenville; *Richard Hubbard*, 8 Atlantic Ave., Oceanside, L. I.; *Leo W. Fox*, Poverty Knob, Osceola; *George T. Morgan*, 125 Mansion St., Coxsackie; *Edward T. Coupal*, 265 Shotwell Pk., Syracuse 6; *Allen A. Sharp*, 100 Shennecossett Pkwy., Groton, Conn.; *M. H. Luce*, 12 Jamestown St., Gowanda; *Charles Heffner*, 11 Court St., White Plains; *Mrs. Ruth D. Eaton*, 100 North St., Middletown; *Frederick C. Warnecke*, Dry Brook Rd., Arkville; *J. Howard Kennedy*, 122 Gordon Ave., Syracuse 4; *Mrs. P. M. Black*, Eldred; *Edward J. Tatre*, 66 Lake St., Stillwater.

COMPLETE SET (except one*): *Mrs. Charles H. Mills*, Lakeside Dr., Pawling (*Oct.-Nov. '46); *Johan Aalto*, Box 337, Ashokan (*Aug. '46).

BROKEN SETS: *Alvin Goldstien*, 482 Bedford Ave., Brooklyn 11—Dec. '51 to present; *George C. Smith*, 516 Jefferson St., Watertown—Apr.-May '49 to present; *Peter H. Smith*, 5608 Main St., Williamsville 21—June-July '49 to present; *Lewis L. Kelley*, Big Flats—Dec.-Jan. '46; Feb.-Mar., Apr.-May, June-July, Aug.-Sept. '47; Dec.-Jan. '47-'48 through Oct.-Nov. '49 and Oct.-Nov. '50 through Apr.-May '51; *T. V. Lacher*, P. O. Box 731, Lake City, Fla.—Feb.-Mar., Apr.-May and June-July '50; *Frank Schmidt*, 1610 Mahan Ave., Bronx 61—Aug. '46; *B. F. Murphy, Sr.*, 124 Brinkerhoff St., Plattsburg—Dec.-Jan. '51-'52 through Dec.-Jan. '53-'54 (except June-July '53); *R. P. Guertin*, 3222 Giegerich Pl., New York 61—Dec.-Jan. '48-'49; *Mr. and Mrs. David Sive*, 9 Brown Dr., Pearl River—Apr.-May '50, June-July '50, Oct.-Nov. '50; Feb.-Mar. '51, June-July '51, Oct.-Nov. '51; Feb.-Mar. '52, Aug.-Sept. '52 and Dec.-Jan. '52-'53; *Alfred D. Cella*, 235 Feronia Way, Rutherford, N. J.—Aug. '46, Oct.-Nov. '46, Dec.-Jan. '46-'47; Feb.-Mar. '47, June-July '47, Aug.-Sept. '47; *Robert J. Donkon*, 438 Webster Ave., Rochester 9—Dec.-Jan. '46-'47, Feb.-Mar. '47, Apr.-May '47, all of Vol. 2 (except Apr.-May '48), all of Vol. 3; all of Vol. 4 (except Oct.-Nov. '49); all Vols. 5, 6 and 7; *Charles Postel*, c/o Foresen, Lakeville, Conn.—Aug. '46 through Vol. 7, No. 6, except Vol. 1, No. 2 and Vol. 3, No. 1; *L. D. Tripp*, Dryden—Dec.-Jan. '48-'49 through Oct.-Nov. '49; Feb.-Mar. '50 through Dec.-Jan. '50-'51; Feb.-Mar. '52 through Dec.-Jan. '52-'53; *G. S. Wilcox*, 432 Fourth Ave., New York City 16—Vol. 2, No. 6 to present; *Charles L. Romilly*, 2751 Lockport St., Niagara Falls—Aug.-Sept., Oct.-Nov. '47, Dec.-Jan. '47-'48 to present; *Edward C. Swan*, 150 Deerfield Dr., Rochester 9—Vol. 1, Nos. 1, 4, 5; Vol. 2, Nos. 1, 2, 4; Vol. 3, all but No. 1; Vol. 4, all but No. 1; Vol. 5 complete; Vol. 6, No. 1; *George Hanville*, Box 156, Van Etten—Vols. 1 to 6 complete; Vol. 1, Nos. 1, 2, 5, 6; Vol. 2, No. 2; Vol. 6, Nos. 2, 6; *Mrs. P. M. Black*, Eldred—Vol. 4, Nos. 5, 6 and Vol. 6, Nos. 1, 2 (4 each of these); *Matthew N. Smith*, 34-48 Kew Gardens Rd., Kew Gardens 15—Vol. 1, No. 3; Vol. 3, Nos. 1, 5; Vol. 4, Nos. 1, 2, 4, 5; *De Forest Euler*, LaVeu Rd., Rochester—Vol. 2, No. 5 to Vol. 8, No. 2; *Harold L. Cochran*, 13 Duprey St., Saranac Lake—Feb.-Mar., Oct.-Nov. '50, Dec.-Jan. '50-'51; June-July, Aug.-Sept., Oct.-Nov. '51, Dec.-Jan. '51-'52; Feb.-Mar., Apr.-May, Aug.-Sept., Oct.-Nov. '52, Dec.-Jan. '52-'53; Feb.-Mar., June-July, Aug.-Sept., Oct.-Nov. '53, Dec.-Jan. '53-'54; *George H. Effler, Jr.*, 44-14 Newtown Rd., Long Island City 3—Vol. 1, Nos. 1, 3, 4, 5, 6; Vol. 2, No. 1; *William J. Mallin*, Box 301, 616 Munro Ave., Mamaroneck—Vol. 2, Nos. 1, 2; Vol. 3, No. 4; Vol. 4, Nos. 1, 3, 4, 5, 6; Vols. 5, 6, 7, complete; Vol. 8, to date.

FOR TRADE: *Douglas V. Smith*, 2198 Story Ave., Schenectady—Dec.-Jan. '46-'47, Feb.-Mar., Apr.-May, Aug.-Sept., Oct.-Nov. '47, Dec.-Jan. '47-'48; Feb.-Mar. '48; Feb.-Mar. '49.

PLEASE NOTE: We feel that subscribers who want complete sets of our magazine are friends indeed, and so we have gone this far to help them. But we simply cannot continue this service. Except for occasional notices about back issues available from this office at 25 cents each, we must cease as of now to act as a clearing house between would-be buyers and sellers of back issues.—*Editor*

Credits

First cover, pages 4, 5, 20, 21, 31, Nick Drahos; second cover, 27, David G. Allen; 2, 6, 7, 10, 11, 12, 14, 15, 33, H. Wayne Trimm; 8, 9, R. L. Voohries, Post-Standard, Syracuse; 16, Frank Toman; 17, Hugh P. Crisp; 18, U. S. Fish and Wildlife Service; 22, Bob Griffith; 23, Harold Crawley, Indian Lake; 24, back cover, Ellen Edmonson; 28, Fred Chambers; 29, Dr. Stegeman.

The Inside On The Outdoors Series

Wasps

IN the spring a young man's fancy. And everybody else should be happy and gay, too. So we will tell you about wasps.

Wasps are our really, truly pals, as we shall see, so do not squash them just because it is the popular thing to do. (If the editor does not have a footnote for *that*, we'll be very much surprised. He showed us where one stung him once but we *still* think he backed into the valve of a bottled gas tank to get in such condition.)

It is now late April and we just had a bath—with a wasp. We did not know it was there until it was all over, the bath that is. Of course this may have been because the wasp became sort of cooked and got a mushy stiletto. Anyway, when discovered it was already slithering across the bottom of the tub toward the drain. This wasp was kind of soapy but we were still able to observe that it had a short peduncle and was, therefore, very likely a social queen.

It is nice to be a nature lover and thus be able to start off the day with such happy observations, even without leaving one's home, or the bathtub.

There are many kinds of wasps and virtually all are of unique benefit to man. For they feed their babies on all kinds of harmful bugs like forest tent caterpillars, cockroaches, cut worms, corn ear worms and stuff like that. Some specialize on spiders. One kind sups on cicadas. Another torments tarantulas. Some kinds, like the yellow jacket, even hunt flies in packs.

Of all the various and sundry wasps, we're here concerned with the familiar Big Four of the Savage Stingeroo—the mud dauber wasp, the common social wasp, the yellow jacket and the hornet, largest of the quartet.

Like the familiar bees, they have big brains, big stings, and rear their young in amazingly engineered cells. But unlike the bees they make their nests of paper or mud instead of wax and carry thereto their insect victims for victuals. Bees are no such predators.

The mud dauber wasp has a very long peduncle indeed. This is the wasp which makes those familiar crumbly mud nests under the eaves and it also is the wasp which invented the equivalent of the frozen food locker.

Around each egg laid in individual nest cells this wasp packs the victims of her sting. These may be other insects or spiders. When the egg hatches into a tiny grub it begins to feed on all that fresh meat—not dead bugs, just paralyzed enough to make them stay put and stop kicking. By the time the grub changes into a pupa and finally emerges as a full grown wasp all the food which stays alive (and fresh for weeks) has been consumed. And by then the parent is dead and gone, too.

Yet with nobody around to tell them what to do, the young dauber wasps have enough instinct to begin the cycle all over again. And they probably go to the same puddle mother did for their mud and use your back porch for their nests just like great-great grandma. And they can sting you in all the old familiar places.

The yellow jackets are those smallish wasps with brown and yellow rings which get in the jam at picnics and mess around overripe pears under the trees. They live in holes in the ground, where they fashion their paper nests from partly decayed wood and provide their young with the thoughtfully masticated juices of soft-bodied insects.

The hornet, largest of the bunch, can sting the pants off a scarecrow. This one is the engineer of those huge globular paper nests suspended in trees or bushes like ash gray Japanese lanterns.

Hornets are murder on flies—being on the prod from daylight to dark after the swarms of victims needed to supply the clicking mandibles of her big, fat and exceedingly voracious young.

Last of the Big Four and by far the best known is the common social wasp, called the Polistes wasp. I don't know why. There are several kinds of these social wasps, so named because they make the home-making deal a social operation with many of the insects taking part. The non-social wasps are called solitary wasps. The mud dauber is in this group. Anyway, fifty to one, Polistes is the one which we'd be most likely to squash. It's the big mahogany colored one we see crawling slowly along the window sash with wings folded flat over its back and with its little peduncle barely showing—but showing enough to be high fashion.

Its appearance in the house between September and May is merely because, unlike other kinds of wasps, this one seeks warm crevices in which to hibernate and is apt to stay more or less active. All of them would be queens—for the male Polistes wasps and the workers, merely undeveloped females, all die before winter sets in, leaving the fertilized young queens to keep the fires going for another year.

In late April or early May each of these queens goes her separate way — which may be only as far as the front porch ceiling. There she brings a mouthful of chewed wood fibers, usually from a dead branch or weathered boards. Mixed with her saliva, the fibers are fashioned into paper.

First she makes the nest stem and from it she suspends a few open-ended cells. In the bottom of each she carefully cements a single white egg. She continues her paper making and in a couple of weeks the nest may contain a dozen cells or more, each with eggs or with hatched larvae in various stages of development.

This marvelous paper engineering effort by now has become increasingly interrupted because the queen's increased family has caused her to make more frequent hunting trips. Off she goes, long legs dangling, coursing over the garden for a caterpillar or a fly. Her vision is acute and her aim unerring. In a moment she carries her paralyzed victim back to the nest, tucking it carefully into the cell where masticatory demands are greatest at the time.

Soon, silken caps appear on the first cells where the oldest larvae are undergoing a complete physical change. In a day or so they crawl forth as adults. All will be females—but not fully developed. They're classed as workers and immediately they start their chores. They construct more cells around the family nest and help feed the young. The queen now has more time for laying eggs and for her own meals which, strangely enough, are vegetarian — the juices of flowers and plants. Only the young eat insect flesh.

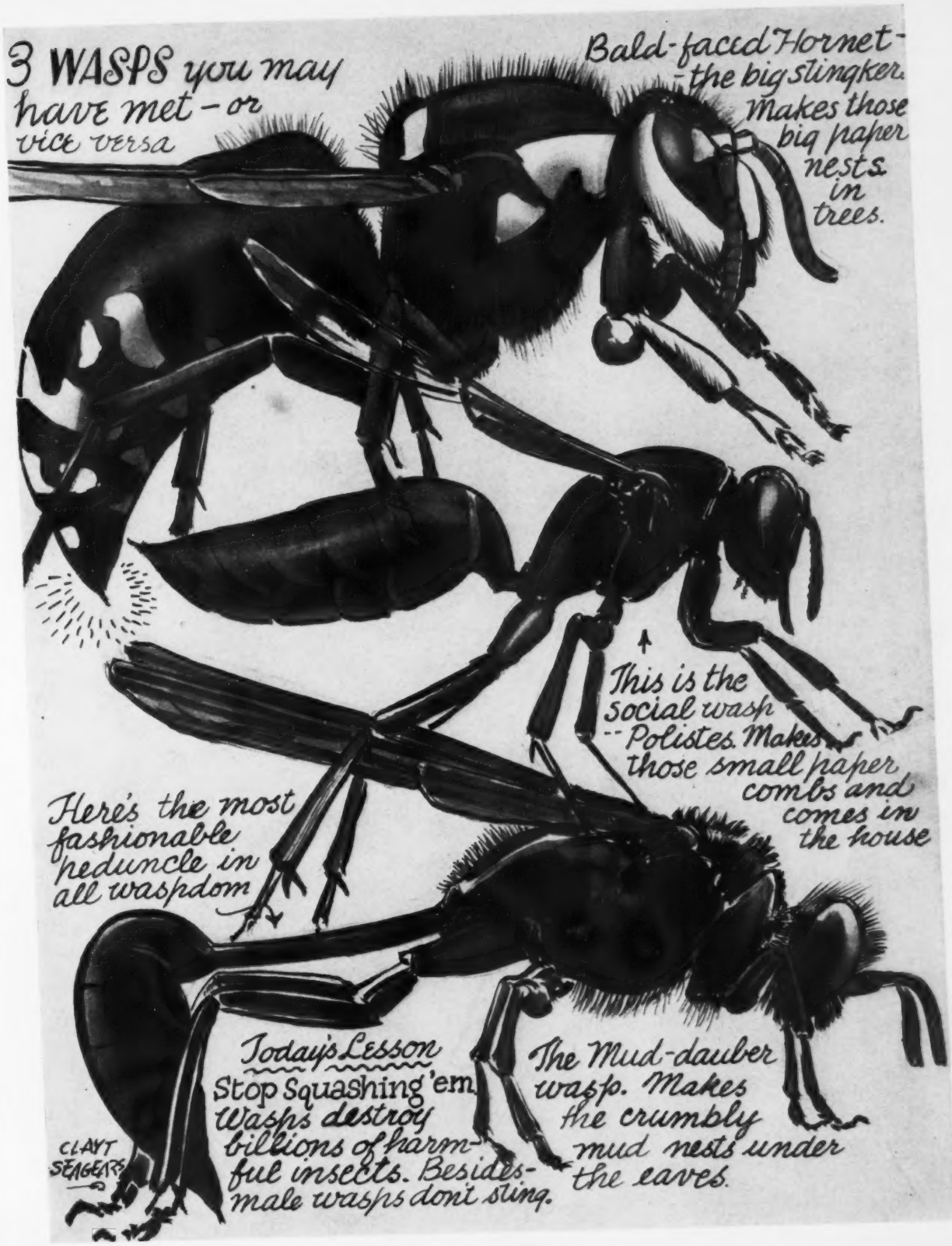
By late summer the males begin to hatch. And also by mystic processes involving special diet, some of the females emerge from the cells fully developed as queens.

The golden rod is in bloom. Soon the first frost withers the grape leaves. Struggling feebly on the porch floor are a few males, dying. Fewer and fewer workers return to the nest each night. And soon all are dead—all but the young queens. Into the house crevices they go, seeking those warm places for overwintering.

Queens of the mud daubers, the yellow jackets, and the hornets crawl under logs, loose bark or burrow into debris. But the fertilized queens of Polistes crawl in with us whenever they can. And always ready to take advantage of our hospitality is that sheathed stiletto.

ONE thing about these wasps, however: The males can't sting. But since they look almost exactly like their mean old sisters, this is probably the most useless bit of information you'll ever get stuck with.

—CLAYT SEAGEARS


3 WASPS you may have met – or vice versa
Bald-faced Hornet – the big slinger. Makes those big paper nests in trees.
This is the social wasp -- Polistes. Makes those small paper combs and comes in the house
Here's the most fashionable peduncle in all waspdom
Today's Lesson
Stop Squashing 'em. Wasps destroy billions of harmful insects. Besides- male wasps don't sting.
The Mud-dauber wasp. Makes the crumbly mud nests under the eaves.
CLAYT SEAGERS

LANDLOCKED SALMON
Salmo salar sebago (Girard)
From immature male 7⅛ inches long

LANDLOCKED SALMON
Salmo salar sebago (Girard)
Breeding colors from adult male 21⅝ inches long

(See page 8)